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ABSTRACT

An initial plan for a comprehensive vocational and technical education program in Indiana, this document contains an introduction, three major sections, six appendices, and a 54-item bibliography. The appendices constitute more than half the document. The introduction explains the document's origins and limitations. The first section states the mission, goal, and initiative of vocational education in Indiana. Priorities and strategies are set forth in the second section, including those having to do with resources; evaluation and accountability; agency and institution missions and levels; basic skills; guidance, counseling, placement, and career development services; professional development; and partnerships. The third section lists the following areas in which future policy development or statements may be identified: basic skills; guidance, counseling, placement, and career development services; professional development; resources; evaluation and accountability; educational levels; funding; duplication; transition and articulation; curriculum; the obsolescence, relevance to labor market demands, and cost-effectiveness or cost-benefit of vocational offerings; technical education and training for adults; and definitions. The appendices use tables, text, and charts to describe the Indiana population and economy, and contain excerpts from the Indiana legislation that required a comprehensive plan, a list of occupational programs, and an analysis of program supply and demand. (CML)

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A LONG-RANGE STATE PLAN FOR A COMPREHENSIVE VOCATIONAL EDUCATION PROGRAM IN INDIANA

EDUCATION AND JOBS FOR INDIANA'S FUTURE

Indiana Commission on Vocational and Technical Education

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EDUCATION AND JOBS FOR INDIANA'S FUTURE

A LONG-RANGE STATE PLAN FOR A COMPREHENSIVE VOCATIONAL EDUCATION PROGRAM IN INDIANA

State of Indiana

Indiana Commission on Vocational and Technical Education

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Education and Jobs for Indiana's Future was approved by the Indiana Commission on Vocational and Technical Education on July 14, 1988.

The Indiana Commission on Vocational and Technical Education complies with all federal regulations prohibiting discrimination on the basis of race, religion, national origin, sex, age, handicap, or veteran status in matters pertaining to admissions, employment, and access to programs.

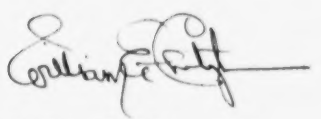
ACKNOWLEDGMENTS

A special thanks to all those people who have assisted in developing the Long-Range State Plan for Vocational and Technical Education.

The interest in vocational and technical education and its future in Indiana is tremendous. With everyone's cooperation and efforts, the future for Indiana and all of its citizens is bright!

The following entities, through over sixty (60) representatives, have provided valuable insights in developing this Plan.

Association of Private Industry Council Administrators
Ball State University
Bricklayers Local 19 & Allied Crafts
Commission for Higher Education
Corporation for Science and Technology
Department of Commerce
Department of Correction
Farm Bureau, Inc.
Health Professions Bureau
Indiana Association of Area Vocational Districts
Indiana Association of Public School Superintendents
Indiana Business Research Center
Indiana Commission on Proprietary Education
Indiana Council of Vocational Administrators
Indiana Council on Vocational Education
Indiana Department of Education
Indiana Department of Employment and Training Services
Indiana Department of Human Services
Indiana Economic Development Council
Indiana Manufacturers' Association, Inc.
Indiana Occupational Information Coordinating Committee (INDOICC)
Indiana School Boards Association
Indiana State Teachers Association
Indiana State University
Indiana University
Indiana Vocational Technical College
Indianapolis Electrical Joint Apprentice Training Committee
Licensing Commission
Office of Manpower Studies
Plumbers & Steamfitters Local Union 661
Purdue University
Regional Planning Administrators Association
State Board of Health
State Chamber of Commerce
Vincennes University



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PREFACE

OFFICE OF THE GOVERNOR
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ROBERT D. ORR
GOVERNOR

July 14, 1988

Dear Hoosiers:

Vocational and technical education is extremely important to Indiana's commitment to meeting the diverse needs of its citizens. In Indiana, vocational and technical education serves citizens of various ages and educational backgrounds: those who are employed and those who are unemployed, special populations, such as single parents and homemakers, handicapped individuals, disadvantaged persons, the incarcerated, and those who are gifted and talented.

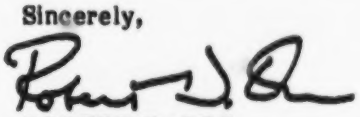
Because of the interdependent global economy, changing workforce needs, and the transformation of the population, vocational and technical education has entered a challenging new era. The 1987 General Assembly enacted legislation creating the Indiana Commission on Vocational and Technical Education to plan and to oversee the comprehensive vocational and technical education system.

This legislation requires the Commission to develop, evaluate, and implement a comprehensive long-range state plan for vocational and technical education. The Indiana Commission on Vocational and Technical Education has clearly defined its agenda for action and adopted strategies for achieving its goal of providing a quality workforce by preparing Hoosiers for both employment and further education.

"Education and Jobs for Indiana's Future" is an initial step which establishes the goal and sets direction for a coordinated, efficient vocational and technical education system for Indiana. The voices of interested persons and groups throughout the state have been heard in creating this plan, in setting the goal, and in establishing the priorities. It is through a partnership of state agencies, local education agencies, postsecondary institutions, and other providers of programs and services that Indiana will achieve its goal.

The recommendations of the Commission are designed to provide a basis for future planning. This is a beginning that will result in stronger vocational and technical education opportunities for Indiana's current and future workforce.

Sincerely,



ROBERT D. ORR
GOVERNOR

I. INTRODUCTION

The 1987 Indiana General Assembly enacted legislation creating the Indiana Commission on Vocational and Technical Education (ICVTE) to plan and oversee the comprehensive vocational education system in Indiana. The Indiana Commission on Vocational and Technical Education (Commission) carries out its authority and responsibilities in accordance with Public Law 217, and excerpts from Indiana Code 20-1-18.3 are included in Appendix C.

The Commission has a unique opportunity to help the State develop and implement a comprehensive statewide human resources policy for vocational and technical education under its mandate to establish direction and policy regarding the education and training of Indiana's current and future labor force. The Commission is charged with conducting long-range planning with regular assessments of needs. The Commission will assess the major factors affecting the workplace and the degree to which the vocational education system is providing the knowledge, skills, and attitudes that employers require.

The Commission recognizes that vocational education is in an evolutionary mode and is a viable means for achieving a quality workforce and increasing the economic wealth of the state. The Commission solicits from the Indiana Council on Vocational Education (Indiana Council) assistance for further development and future revisions of this Plan.

The Commission challenges the Indiana Department of Education (DOE), the Commission on Higher Education (CHE), and the Indiana Department of Employment and Training Services (IDETS) in the development and implementation of their plans to provide the support necessary to move vocational education forward into the nineties as well as the twenty-first century.

In order to be most effective, the Commission is clearly defining its agenda for action and adopting strategies for achieving its goal. The Commission realizes that it does not have the appropriate data and information to develop an extensive comprehensive plan; it is difficult to determine what and how many resources are being spent on vocational education and exactly what the costs are; and the timing has not been such that dialogue and study of the issues have been sufficient to make appropriate recommendations. Therefore, this document is the first comprehensive plan which will need further expansion.

This initial planning document for a comprehensive vocational and technical education program is submitted to the people of Indiana. It is also a statement to the Indiana Department of Education, the Indiana Commission on Higher Education and the Indiana Department of Employment and Training Services for the development and implementation of their plans. Further, it is a plan to help other agencies in Indiana State Government to understand and to support vocational and technical education.

Considerable data gathering and analysis must be completed before a more specific plan can be completed. This initial planning document should be viewed with this fact in mind. To accomplish the development of a more specific plan, it will be necessary for the Indiana Department of Education, the Commission for Higher Education and the Department of Employment and Training Services to work with the Commission to identify: 1) the best methods to accomplish the strategies outlined in the Plan; 2) areas for which information is not available; 3) methods for retrieval of information; and 4) targeted studies which might be needed for decision-making.

An outcome-driven plan will be completed prior to the 1991 biennium. The priorities and strategies identified in this Plan will be the foundation upon which the outcome-driven plan will ultimately be developed. Vocational education resources will be recommended for those programs that create economic growth for Indiana. The ultimate plan will make recommendations that can fully develop Indiana's human resources related to vocational and technical education and point to a future path for this State.

II. MISSION, GOAL AND INITIATIVE

The mission of vocational and technical education is to develop the knowledge, skills and attitudes needed for employment and further education for all citizens which contributes to the economic well-being of individuals and ultimately the State of Indiana.

In order that Indiana be in the forefront, the Commission has identified the following goal:

> The goal of vocational and technical education is to provide a quality workforce by preparing citizens for both employment and further education.

One initiative identified to reach the goal is that of human resource development.

Human Resource Development

The greatest natural resource in Indiana is its people. Vocational and technical education provides a means for our citizens to gain the skills they need for employment and further education. Vocational and technical education contributes significantly to opening the doors of opportunity on a continuing basis. The outcome of human resource development is economic development—not only for its citizens but also for the State.

The Commission's objective is to plan, develop policy for and coordinate the delivery of quality vocational and technical education programs and support services to meet the needs of individuals for occupational success and for further education.

Indiana's competent, well-educated, flexible and productive workforce is essential to sustain and expand its economy. Business, industry, education, labor and government must join in partnership for economic development efforts to be successful. Vocational and technical education must address the current and future needs of business, industry, labor and government.

The Commission's objective is to plan, develop policy for and coordinate the delivery of vocational and technical education services that help the citizens of Indiana actively participate in economic development efforts.

Definition

For the purposes of this Plan, vocational education in Indiana is:

- any vocational, agricultural, occupational, manpower, employment, or technical training or retraining that: (1) enhances an individual's career potential and further education; and (2) is accessible to individuals who desire to explore and learn for economic and personal growth leading to employment opportunities.
- an integral part of the total curriculum and consists of systematic, organized services, activities and programs for education and training that prepare students with technical, employability and life skills.
- systematic, organized programs in such fields as agriculture, business occupations, home economics, health occupations, marketing and distribution occupations, technical and emerging occupations, modern industrial and agriculture arts, and trades and industrial occupations or for additional preparation for a career in such fields, and in other occupations, requiring less than a baccalaureate or advanced degree.
- an emphasis on leadership development, practical hands-on experience or application, entrepreneurship, as well as attitudes, self-concepts, knowledge and skills relative to jobs and job tasks.
- to prepare students for advanced training and education.
- to enhance and complement basic academic skills that help achieve total preparation of the student.
- instruction which is designed upon its completion to prepare individuals for employment in a specific occupation or cluster of closely related occupations in an occupational field, and which is especially and particularly suited to the needs of those engaged in or preparing to engage in such occupation or further education.
- instruction which may include: classroom instruction; related field and laboratory work; programs providing occupational work experiences, including cooperative education; related instructional aspects of apprenticeship programs; remedial programs; and activities of vocational student organizations.
- "Occupationally Specific Program" in the Classification of Instructional Programs (CIP) coding system. (Appendix D)

III. PRIORITIES AND STRATEGIES

While the Commission is refining its plan during the next two years as well as producing substantive data and information, seven priorities have been identified which provide a foundation for improving vocational and technical education. The priorities include resources, evaluation and accountability, agency/institutional missions and educational levels, basic skills, guidance and counseling, professional development, and partnerships.

Strategies have been identified to provide a focus for the vocational and technical education system in moving toward the goal of "providing a quality workforce by preparing citizens for both employment and further education."

In developing their plans, the Indiana Department of Education, Commission for Higher Education and the Indiana Department of Employment and Training Services should address those strategies which are appropriate for their area of responsibility. In addition, the agencies should identify those strategies for which they will need to cooperate with one or more entities.

A. Resources

Present Situation

Financial resources applied to vocational and technical education present a complex picture. Following are brief descriptions of the funding process currently in place.

Secondary education is primarily funded through a basic grant formula plus two formulas for vocational education: 1) a weighted formula; and 2) a transportation formula. These are supplemented by local tax funds, federal funds through grants and in a few cases, foundations.

Postsecondary institutions are primarily funded by state appropriations. The state legislature appropriates lump sums in response to specific institutional budget requests. Institutions also generate funds from tuition and fees, grants and contracts, contributions and federal sources.

In addition to state funding for vocational education, federal funding consists of: 1) Carl D. Perkins Vocational Education Act funds which are predominantly categorical in nature; 2) Job Training Partnership Act funds which are predominantly targeted for economically disadvantaged populations; 3) funds available through the Department of Human Services for the handicapped, and 4) funds to the Department of Education for Adult Basic Education/General Equivalency Diploma (ABE/GED).

Another source of funds for training and retraining is through the Department of Commerce which operates the Training for Profit and Basic Industry Re-Training (TFP/BIRT) programs. These two programs are essentially investments to attract and retain jobs in the State of Indiana in business and industry. The TFP program provides vocational and technical training for a new job that actually exists in the workforce. The BIRT program provides existing business and industry the opportunity to retrain the current workforce in vocational and technical areas when new industrial investments are made in the State of Indiana.

According to the Hudson Institute study on vocational education, there are "significant differences (that) exist between the state funding models used for vocational education at the secondary, postsecondary, and adult program levels".

Because of the various funding sources, it is difficult to determine the total cost of vocational and technical education. There is a need for a comprehensive study to determine what resources are available and which resources need to be allocated or reallocated to meet the goal of the Commission.

Trends

Federal funds over the past number of years have been declining in relationship to total dollars needed for vocational and technical education. A portion of federal funds has been used for vocational and technical education equipment which continues to be a significant and high priority.

According to the Hudson Institute, "it would appear that scant and relatively insufficient funding is available to serve adults. This segment of the potential population of vocational education students will become increasingly important to Indiana's economy of the future."

Concern over funding appears to be a high priority based upon action which has been taken by the Legislature. In Public Law 217, Acts of 1987, the State Board of Education was charged to: 1) investigate the funding of vocational education on a cost basis, and 2) every four years, conduct a study and prepare a report concerning the weighted formula used in providing the state vocational education grant to local school corporations. Further, the legislature (SB 128, Acts of 1988)

established a committee to study school finance.

Strategies

The following strategies have been identified to address the priority of resources:

1. Initiate a comprehensive study of financing for vocational and technical education taking into account existing studies mandated by the legislature. The study will cover: program costs, levels, administration, support and all resources.
   (Begin: 7/1/88; end: 6/30/90)
2. Explore and disseminate information about the availability of financial incentives from federal, state and other sources (corporations and foundations) that provide support for partnerships.
   (Begin: 7/1/88; on-going)
3. Initiate a comprehensive study and make recommendations regarding tax incentives and credits for:
   a. business coordination and investments in vocational/technical education,
   b. businesses and industries which provide equipment necessary for current occupational technology,
   c. business and industries to encourage collaboration in providing quality internships for teachers, and
   d. teachers for professional development.
   (Begin: 7/1/88; end: 6/30/90)
4. Establish a foundation for vocational and technical education.
   (Begin: 7/1/88; end 6/30/90)
5. Prepare and present to the legislature for the 1991 biennium, strategies and required resources for strengthening vocational and technical education.
   (Begin: 7/1/88; end: 6/30/90)

B. Evaluation and Accountability

Present Situation

For more than ten years, schools and institutions that receive federal vocational education funds have participated in a three-phase system of evaluation. This system consists of: 1) self-evaluation or internal review, 2) external evaluation conducted by a team of evaluators, and 3) recommendations or responses for quality improvement. The data and information provided by the system were the basis for decisions for program improvement. To date, each recipient of funds has participated in the evaluation system a minimum of two times.

While this system has served the identified purposes, major social, economic, demographic and technological changes have occurred in Indiana and the nation since its initial implementation. It is time to reconsider, to assess needs, and to define the purpose and the scope of an evaluation system designed to provide the information necessary to make decisions which allow vocational education to effectively respond to the changing economic and educational needs of its citizens.

Trends

Many different evaluation models exist with variations in complexity and intent. Regardless of the model that is adopted, the criteria which are established will be the basis from which recommendations for the improvement of both programs and the system will be made. Evaluation requirements delineated in federal legislation, while global, provide a framework for specific criteria. Generally, these include assessment of:

(a) the current and projected occupational needs and the current and projected demands for general occupational skills within the State;

(b) needs of students, including adults, in order to determine how best to improve student skill levels, in light of Indiana's occupational and skill requirements;

(c) the special needs of handicapped, disadvantaged, adults in need of training and retraining, single parents or homemakers, criminal offenders, and individuals who participate in programs designed to eliminate sex bias and stereotyping in vocational education for access to vocational education and vocational education services in terms of labor market needs

(d) the quality of vocational education in terms of—
   (i) the pertinence of programs to the workplace and to new and emerging technologies,
   (ii) the responsiveness of programs to the current and projected occupational needs in the State.
   (iii) the capacity of programs to facilitate entry into, and participation in vocational education and to ease the school-to-work and secondary-to-postsecondary transition,

(iv) the technological and educational quality of vocational curricula, equipment, and instructional materials to enable vocational students and instructors to meet the challenges of increased technological demands of the workplace; and

(v) the capability of vocational education programs to meet the needs for general occupational skills and improvement of academic foundations in order to address the changing content of jobs;

(e) the capacity of local education agencies, and postsecondary institutions to deliver the vocational education services necessary to meet identified needs, and

(f) how the services and activities supported by federal vocational education funds may be expected to assist in meeting identified needs and the State's goal.

The design of an evaluation system to determine the effectiveness of vocational and technical education will not be developed in a vacuum. Each agency and institution, from the local to the state level, currently employs methods to collect data and information for the purpose of evaluation. These efforts must not be duplicated, but rather be refined, coordinated and, where necessary, expanded.

The results of program, project and system evaluations serve as the foundation to determine priorities for the use of human and financial resources, in refining the goal and objectives, and in keeping the State's long-range plan current for vocational and technical education.

Strategies

The following strategies have been identified to address the priority of evaluation and accountability:

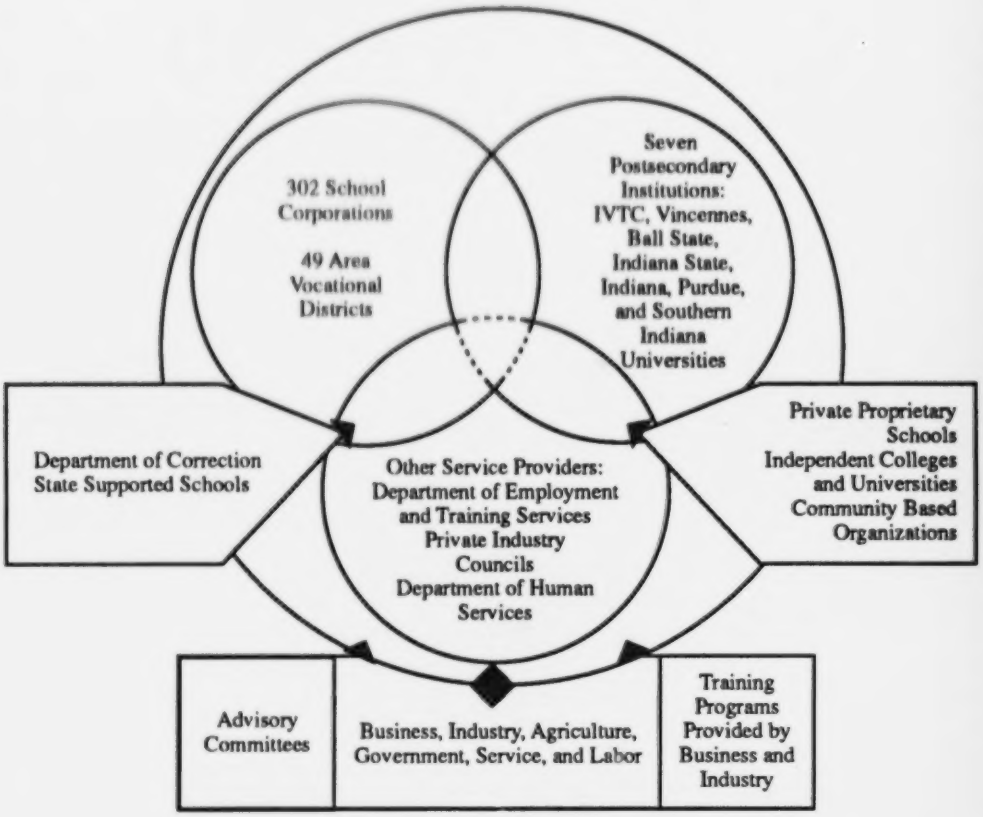
1. Conduct a research study on evaluation to provide recommendations in the following areas:
   (a) Effective outcome-based program evaluation
   (b) Locally directed evaluation
   (c) Methods to evaluate/validate skill requirements
   (d) Efficient methods of data collection, storage and analysis including the feasibility of computer use
   (e) Coordination of data bases and evaluation systems
   (f) Criteria for evaluation of quality vocational and technical education programs and services
   (g) Evaluation criteria and analysis of effective system evaluation
   (Begin: 7/1/88; end 1/1/90)
2. Establish approved criteria for the evaluation of vocational education programs, services, activities, and special projects taking into account the research study identified above. The approved criteria will provide standards for evaluating duplication of effort and outcomes across delivery systems.
   (Begin: 7/1/88; end: 3/30/89)
3. Collect, analyze and make appropriate data and information available for planning purposes based on evaluation criteria and methods.
   (On-going; 8/1/ of each year)
4. Develop a plan for technical assistance to local providers of programs, services, activities and special projects.
   (Begin: 7/1/88; end: 9/1/88)
5. Increase local accountability of vocational and technical education and training programs based on student outcomes and related to labor market needs.
   (Begin: 10/1/88; preliminary impact: 6/30/92; major impact: 6/30/94; on-going)
6. Develop and implement data systems for evaluation of delivery of vocational and technical education at every level.
   (Begin: 7/1/88; end: 1/1/90)
7. Study and make recommendations regarding evaluation criteria which identifies the effectiveness of counseling programs.
   (Begin: 7/1/88; end: 1/1/90)
8. Develop a method of accountability for each strategy identified in the long-range plan.
   (To be determined in conjunction with other agencies)

C. Agency/Institutional Missions and Levels

Present Delivery System

As denoted on the following chart, vocational education is delivered through a variety of agencies, institutions, and providers at numerous locations. More than 219,000 citizens are served each year through the publicly supported vocational education delivery system. Additional students are served through the private vocational sector including proprietary schools, independent colleges and universities, community-based organizations and training programs provided by business and industry.

INDIANA VOCATIONAL AND TECHNICAL EDUCATION DELIVERY SYSTEM


302 School Corporations
49 Area Vocational Districts
Seven Postsecondary Institutions: IVTC, Vincennes, Ball State, Indiana State, Indiana, Purdue, and Southern Indiana Universities
Department of Correction
State Supported Schools
Other Service Providers:
Department of Employment and Training Services
Private Industry Councils
Department of Human Services
Private Proprietary Schools
Independent Colleges and Universities
Community Based Organizations
Advisory Committees
Business, Industry, Agriculture, Government, Service, and Labor
Training Programs Provided by Business and Industry

Secondary Vocational Education

There are 302 school corporations in Indiana which operate the State's public elementary and secondary schools. Each school is under the control of a local school board. The State Board of Education is responsible for public education in Indiana, including establishing standards and teacher certification.

Vocational education programs are an integral part of the public schools serving students in comprehensive high schools and through area vocational districts.

In the 1970s, 49 area vocational districts were established for the purpose of providing ample opportunity for secondary students to participate in more specialized and expensive vocational offerings coordinated through shared facilities and programs. Students can elect vocational offerings in their home high school or offerings at other high schools within the area district. At the present time, 30 area vocational districts maintain central facilities for the more extensive offerings and for the more specialized programs which might potentially have small enrollments.

Each of these central facilities is governed by an established board for the area school or the board of a school corporation in that particular district.

Area vocational districts, including central facilities and comprehensive high schools, offer adult noncredit training and retraining opportunities and related instruction for apprenticeship programs. Further, custom job specific programs are developed to meet individual needs of employers.

Postsecondary Vocational Education

Indiana's postsecondary vocational and technical education system is unique in the nation. There are seven publicly-supported postsecondary institutions serving students in vocational and technical education programs leading to an occupational certificate, technical certificate, or an associate degree. The Commission for Higher Education has responsibility to plan and coordinate the state-supported postsecondary system.

The largest and most comprehensive provider is Indiana Vocational Technical College (IVTC) which was created in 1963 for the purpose of preparing individuals for initial employment or job upgrade through credit offerings which may lead to a technical certificate or associate degree. IVTC has 13 regions in the state with a major instructional center plus satellite centers in each region. IVTC also provides technical training and retraining on a contractual basis with companies, related instruction for apprenticeship programs, remediation for students in order to prepare them for technical and vocational education and custom job specific training programs to meet individual needs of employers.

Vincennes University is a comprehensive junior community college, largely residential, and involved in vocational and technical education, as well as college transfer programs.

The four-year public institutions offering vocational and technical education in their specific mission areas include: Ball State University, Indiana State University, Indiana University with regional programs, Purdue University with regional programs and Statewide Technology, and the University of Southern Indiana. Most associate degree offerings lead directly into a baccalaureate program.

Other Service Providers

Other service providers of vocational and technical education include the private industry councils and the Department of Human Services.

There are 17 local service delivery areas under the oversight and operation of private industry councils (PICs). Indiana Department of Employment and Training Services (IDETS) administers the Wagner-Peyser and Job Training Partnership Act legislation through the 17 local service delivery areas and provides employment services including counseling, job placement and labor market information.

A number of programs conducted by the PICs provide a "second chance" for the disadvantaged through targeted efforts, such as the Job Training Partnership Act for economically disadvantaged people, the IMPACT program for food stamp recipients, the Veterans Employment and Training Program, and Targeted Jobs Tax Credits. Retraining programs for workers dislocated due to long-term layoffs or plant closings may include classroom occupational training or on-the-job training with specific employers.

The Department of Human Services provides vocational rehabilitation programs and services for people with disabilities through its Office of Vocational Rehabilitation. These programs and services are provided in conjunction with public and private education agencies and institutions including rehabilitation facilities.

Department of Correction

The Department of Correction provides within its system opportunities for high school credit, Adult Basic Education/General Equivalency Diploma (ABE/GED) and vocational programs for its incarcerated population. This department also contracts with postsecondary institutions to provide degree opportunities for the inmate population.

Special Schools

There are a total of three secondary schools which are state supported for specialized populations. The schools include: Indiana School for the Blind, Indiana School for the Deaf, and Morton Memorial School (Indiana Soldiers' and Sailors' Children's Home). The schools provide vocational education to special populations.

Private Proprietary Schools and Independent Colleges and Universities

Approximately 117 privately owned business, technical, trade and vocational schools exist in Indiana enrolling students in a broad range of programs. These institutions are

monitored by the Indiana Commission on Proprietary Education.

Thirty-two independent colleges and universities complete Indiana's higher education picture.

Community-Based Organizations

Community-based organizations are private nonprofit organizations which are representative of communities or significant segments of communities and which provide job training services.

Other Elements

Another important component of the vocational and technical education delivery system involves the in-house training programs provided by business and industry. These programs range from basic skills training to technological upgrade needed for business and industry to remain competitive.

An extensive network exists between education agencies/institutions and business, industry, agriculture, and labor. More than 17,000 advisory committee members from business, industry, agriculture, government, service and labor are involved at the regional and local levels to assure that programs meet high standards and are up-to-date in technology and skill requirements.

Summary

Vocational and technical education is delivered through a variety of agencies, institutions and providers at numerous locations. The vocational and technical education delivery system has offerings which are diverse and serve a variety of levels including entry-level skill development, job upgrading and retraining, and job specific training to meet the needs of individuals, employees, and employers.

Agency/Institutional Missions

The missions of public schools and institutions have been shaped by a number of factors including the State Constitution, Indiana General Assembly, state-level agencies, as well as school boards and boards of trustees as governing bodies.

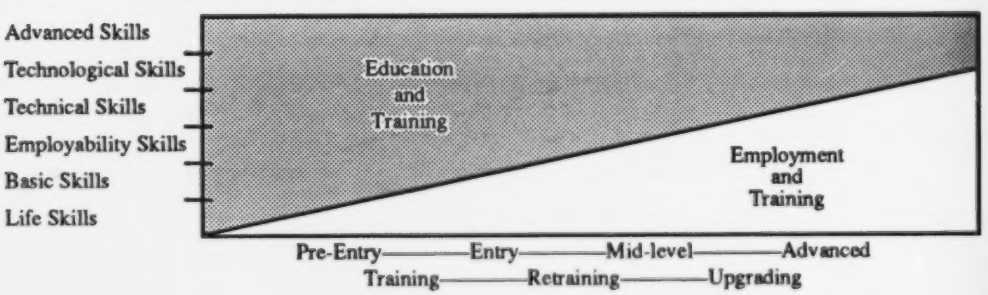
As the need for continual upgrading and retraining of the workforce is emphasized, more and more cooperation among the public schools and institutions must occur for the student to move easily through the system to achieve occupational competence. This may necessitate some revision of agency/institutional missions.

Educational Levels

In the past, levels have been defined as secondary, postsecondary and adult, based upon the student's objective. The reference to adults has been for programs and services which do not lead to either a high school diploma or postsecondary degree at less than the baccalaureate level.

The emphasis is moving from "which delivery mechanism is providing the programs and services" (secondary agency or postsecondary institution) toward an integration of programs and services for a fluid system of occupational benchmarks at logical points in the career ladder.

EDUCATIONAL LEVELS—A CONTINUUM



Strategies

The following strategies have been identified to address the priority of agency/institutional missions and levels:

1. Study the current missions of all components of public education. Study the impact of all private vocational education delivered through proprietary schools/institutions and business and industry. Analyze the studies and make recommendations.
(Begin 9/1/88; major impact 6/30/92)

2. Establish the educational levels expected of programs proposed to meet the projected employment needs as defined under Public Law 217.
(Begin: 9/1/88; major impact 6/30/92)
3. Plan and develop guidelines for competency-based education for vocational education as defined under Public Law 217.
(Begin: 9/1/88; end: 9/1/98)
4. Adopt a statewide process for the development of curriculum through the Technical Committee.
(Begin: 7/1/88; end: 12/30/89)
5. Develop a task force to study the segment of the adult education continuum of technical education and training for adults including adult non-credit vocational education and make recommendations as related to agencies and institutions involved in budgetary and policy development.
(Begin: 10/1/88; end: 6/30/90)
6. Conduct a study and develop a strategy for regional communication, coordination, cooperative efforts and partnerships among all vocational and technical education program and service providers for maximum responsiveness within an identified region of the state.
(Begin: 7/1/88; end: 12/30/88)

D. Basic Skills

Present Situation

Basic skills is a universal concern. James E. Duffy, President of Communications at ABC, said: "No issue is as critical to the future of America as literacy in the workforce. We simply cannot allow this nation to enter the 21st century without a literate, skilled, and flexible workforce. From individual businesses to entire industries, the effect of a workforce unprepared for an information-based, service-oriented economy will be devastating." (The Bottom Line: Basic Skills in the Workplace, p. 19)

"Employers in both large and small businesses decry the lack of preparation for work among the nation's high-school graduates. Too many students lack reading, writing, and mathematical skills, positive attitudes toward work, and appropriate behavior on the job. Nor have they learned how to learn, how to solve problems, make decisions, or set [long-range] priorities." (Investing In Our Children)

Further, "the nature of work is changing at all levels—and new jobs as well as most old jobs will require higher minimum levels of basic skills for job entry, and continuing education and training for workers to remain effective and to progress." (Job Related Basic Skills: Cases and Conclusions, Information Series No. 25)

"Beyond these specific skills (basics). . . young people need additional characteristics to succeed on the job; attitudes and understanding that lead to good work habits and successful interpersonal relationships." (High Schools and the Changing Workplace: The Employers' View)

The term "basic skills" tends to be used differently depending upon the setting and individuals that are discussing the "basics". *Two distinct meanings, however, consistently rise to the surface regarding basic skills.* These are:

1. *Basic Academic Skills:* To include reading, writing and mathematics. (When applied to technology, science is usually added.)
2. *Basic Employability Skills:* Positive attitudes toward work and appropriate behavior on the job (also known as interpersonal skills or teamwork), as well as job-seeking skills (filling out applications, resumes, interviewing.) and job-keeping skills. Computer literacy, as it applies to service and manufacturing industries, also is a major part of basic employability skills.

According to the Office of Manpower Studies, a major adult-based factor concerns the percentage of adults 25 years old and older who have not completed a high school diploma—although this percentage has decreased substantially since 1940 (three out of four or 75 percent, to one out of three or 33 percent for Indiana), it is significant in identifying the magnitude of need within the adult population.

Trends

Again, basic skills is a universal problem. The required skill levels are moving targets and are not unique to education. To meet the demands of the workplace and the workforce of the future, schools and employers must work together to ensure that their communities are competitors in economic development.

"For many vocational education students, a history of poor academic achievement develops long before they make a choice to select an occupationally specific program. Remedying this will require much greater attention to the basics while children are in elementary

and junior high school. We believe better and earlier academic instruction will ensure that if a student chooses to take occupationally specific training, that student will not only perform better in the classroom, but will also have the fundamental communication, computational, and problem-solving skills that are required by virtually all of today's employers for entry-level positions." (Investing In Our Children)

The ideal would be for each person to have acquired these skills prior to embarking on their vocational programs. Presently there are many thrusts in the educational arena intended to assist in this endeavor; however, major results as related to the workforce will be futuristic rather than immediate. More effort must be focused on improving basic skills needed for the future.

Basics do not compete with vocational skills; they help lay the foundation for all types of learning. According to J.P. Lisack, Director of Manpower Studies, "vocational and technical educators must enter the literacy-competency arena with a vengeance. . .because people require both basic academic competencies and the job-related knowledge and skills needed by employers if they are to get and/or hold a good job. This applies to both labor-force entrants as well as to adults now in the workforce."

Improving basic skills in both the educational system and the workplace is critical if the State of Indiana is to remain competitive in both the national and world economy.

Strategies

The following strategies have been identified to address the priority of basic skills:

All citizens should have an opportunity to gain the basic skills of education. Vocational and technical education programs reinforce, through application, the basic academic skills.

1. Provide basic academic skills to *all* students prior to grade nine and prior to entering vocational education.
   (Already started through PRIME TIME and INDIANA STATEWIDE TESTING FOR EDUCATIONAL PROGRESS (ISTEP); completed by 1998; on-going)
2. Integrate basic employability skills throughout the entire educational experience.
   (Begin: 9/1/88; end 1998; on-going)
3. Use vocational education through meaningful life situations to reinforce, through practical application, the basic academic skills and basic employability skills.
   (Begin: 9/1/88; major impact: 6/30/93; on-going)
4. Support the Adult Basic Skills Programs Oversight Committee regarding delivery of basic academic skills for adults.
   (Continue; End, 1992; on-going)
5. Assess the delivery of remedial education by the postsecondary institutions and provide information and recommendations concerning trends related to the need for remediation of basic skills.
   (Begin: 9/1/88; 6/30/90; 6/30/92; on-going)
6. Conduct a study and develop a strategy to determine when, where and how to include in vocational education an understanding of economics and the economic system which reflects the state, national and world economy.
   (Begin; 9/1/88; major impact: 6/30/93; on-going)

E. Guidance, Counseling, Placement and Career Development Services

Present Situation

"What do you want to be when you grow up?" This question frequently asked of Hoosier children is not an idle question. The child's answers and plans will affect self-concept, level of education, job choices, lifetime earnings, family lifestyle, and community participation from elementary school through retirement. The answer to this question is not static, but changes through a complex interaction between individual desires and external opportunities. Whether the individual is a young person planning high school courses, a college student contemplating a job after graduation, a worker thinking about a job change, an experienced worker whose job has been terminated, a disabled person contemplating a job or further education, or a worker planning retirement; each will follow common strategies in the development of a career plan. These common strategies are: exploring self and career options; understanding occupational and labor market trends; acquiring decision-making, planning, and employability skills; and understanding the world of work and one's role in it.

During the past decade, there have been a variety of efforts at the local, state and national levels to establish guidelines and standards that support the development of quality career guidance and counseling programs. There has also been increased interest in responding to the career development needs of young adults and adults in the later stages of career development. Federal legislation calls for improvement and expansion of career guidance and counseling programs to meet the career development, vocational education, and employment needs of all individuals.

Trends

Strong and easily accessible guidance, counseling, placement and career development programs and services for all citizens are a critical component of human resource development as Indiana looks toward the 21st century. Demographic, technological, and socioeconomic trends clearly indicate a need for better career planning on the part of Hoosiers in order to take advantage of employment, education, and training opportunities.

The concern for improvement of guidance, counseling, placement and career development programs and services at all levels of education led to the development of model guidelines for each level through the National Career Development Guidelines Project. The guidelines are being field tested and case studies are being developed to help improve career guidance/career development programs throughout the nation.

Strategies

The following strategies have been identified to address the priority of guidance, counseling, placement and career development services:

1. Honor exemplary career programs and services annually.
   (Begin: 7/1/89)
2. Study and identify areas of concern regarding counselor preparation, credentialing, and professional development; and report findings.
   (Begin: 7/1/88; end 6/30/90)
3. Develop and implement a plan to improve guidance, counseling, placement and career development services.
   (Begin: 7/1/90; complete: 12/30/90)
4. Develop statewide guidelines for guidance, counseling, placement and career development services.
   (Begin: 1/1/91; end: 12/30/91)
5. Develop and implement compatible data systems for delivery of occupational information and career information to local delivery systems in a timely and cost-effective manner.
   (Begin: 7/1/88; end: 6/30/89; on-going)

F. PROFESSIONAL DEVELOPMENT

Present Situation

"Our investment in training is a national disgrace. That should come as no surprise. Despite lip service about people-as-our-most-important-asset, we value hardware assets over people, and have done so for the last century."

Tom Peters (1987) *Thriving on Chaos, A Handbook for A Management Revolution*

Trends

While new forms of technology will fuel the technological revolution in every aspect of modern life, people will determine whether the revolution catches on and is implemented through schools.

Dramatic deviations from the traditional are required if teachers are to adjust to the rapidly changing community. There cannot be "innovative" changes in educational programs that do not involve teachers and in-service training opportunities. The most fundamental changes that must occur in schools must first occur with teachers.

High-quality professional personnel at all levels are essential to vocational education programs. Professional vocational education personnel are unique in that they must possess occupational experience in addition to meeting requirements for teacher certification. If vocational teachers are to assist in training others for the changing world of employment, it then is essential that those same teachers must have opportunities to upgrade their skills and knowledge.

Strategies

The following strategies have been identified to address the priority of professional development:

1. Initiate a study regarding vocational teacher certification based on demonstrated teaching competence and occupational competence which allows flexibility for experts outside the vocational and technical structure to teach special classes and make recommendations to

modify vocational teacher certification and recertification.
(Begin: 7/1/88; end: 6/30/90)
(Begin: 7/1/90; end: 6/30/92; on-going)

2. Develop a plan to encourage teachers to participate in all phases of the process of technological update. Study a professional development credit system and tax incentives and make recommendations.
(Begin: 9/1/88; end: 6/30/90)

3. Develop procedures to incorporate updated technological skills into teaching programs.
(Begin: 7/1/88; end: 6/30/90)

4. Recommend that local providers assess the need for technological update and describe plans to address this need. Local operational plans should directly address curriculum update as a necessary part of staff technological update.
(Begin 7/1/90; major impact 6/30/92)

5. Develop statewide guidelines regarding the technological updating of vocational teachers.
(Begin: 7/1/88; on-going)

6. Plan, develop policy for and make recommendations to attract and retain highly qualified vocational teachers, with salary schedules that recognize years of occupational experience, including time spent in business/industry internships, as well as teaching experience, expertise and formal educational preparation.
(On-going)

7. Develop and implement a program of grants or fellowships to local institutions or individual teachers allowing for professional update through a variety of high-potential techniques.
(Begin: 9/1/88; on-going)

8. Develop a plan for and make recommendations regarding incentives available to businesses and industries to encourage their collaboration in providing quality occupational internships for teachers.
(To be determined)

9. Develop statewide guidelines for staffing policies and practices in vocational education which will result in teachers more likely to remain current in their occupation, such as hiring of qualified part-time instructors and/or required, regular, paid business/industry internships for teachers.
(Begin: 7/1/88; on-going)

10. Develop statewide guidelines for the preparation of new teachers and provide for upgrading of existing faculty to enhance the instructional capabilities for the reinforcement of basic academic skills in vocational education.
(Begin: 9/1/88; major impact; 6/30/94)

G. Partnerships

Present Situation

There has been continued growth in the quality and quantity of business, industry, agriculture, government, labor, and vocational and technical education partnerships; however there clearly needs to be more involvement and investment. Educational institutions exist in a dramatically different world than 20 to 30 years ago. The complex problems that educational institutions confront require changes in the way Indiana supports and provides vocational and technical education. Expanded partnerships are important vehicles to improve workforce readiness.

The results of partnership involvement include:

a. Input to policy development through involvement with commissions, councils, local school boards, advisory committees, technical committees and other committees.

b. Marketing efforts which promote partnerships and reinforce vocational and technical education and training.

c. Support and expertise for planning, information systems, organization and competency/productivity standards.

d. Support for the professional development of vocational and technical educators and administrators.

e. Impact on student learning through such activities as mentors/tutors, teachers or lecturers, field trips, providing or sharing equipment, career awareness materials, and curriculum.

f. Efforts supporting special services such as awards, recognition programs, scholarships, or special projects.

Trends

Vocational and technical education should build the education-business partnership to strengthen and enhance the advisory committee structure and expand the cooperative education model.

As a result of partnerships, benefits to business may include: increased basic and technical skills; improved worker preparation,

including work habits, attitudes and motivation; improved understanding of business principles/operations; supply of flexible and qualified workers; and expanded community relations, which should result in increased productivity and product quality.

Increased benefits to vocational and technical education may include: a broad support base; guidance and assistance for skill development; expanded cooperative work experience; technical upgrading and updating of staff, programs, equipment, and facilities; and expanded use of resources resulting in an improved quality vocational and technical education delivery.

Additional partnerships to be promoted and developed to improve vocational and technical education include social service agencies and regional cooperative efforts.

Partnerships including social service agencies can provide supportive services to the increasingly diverse needs of students and trainees.

Regional cooperative efforts bring together all program and service providers for maximum responsiveness. These efforts include: joint use of facilities, equipment, and staff; advisory committees; marketing and public relations; program planning for student transition; in-service for faculty, and partnerships with the private industry councils and other vocational education, training and employment agencies.

Strategies

The following strategies have been identified to address the priority of partnerships:

1. Develop a plan to strengthen partnerships between and among those involved in education and employment training.
   (Begin: 7/1/88; major impact 6/30/90)
2. Develop a plan to expand partnerships between and among business, industry, labor, government and education.
   (Begin: 7/1/88; impact: 6/30/90; major impact: 6/30/92)
3. Assist in the design, development, approval and implementation of the technology preparation curriculum.
   (Begin: 7/1/88; impact: 8/90; on-going)
4. Develop a plan to strengthen and expand partnerships with any state agency, commission or organization that supervises or administers programs of vocational education concerning the coordination of vocational education.
   (Begin: 7/1/88, completed 12/30/89, on-going)

IV. FUTURE DIRECTIONS AND POLICY DEVELOPMENT

During the development of this initial plan, several issues were identified which need to be addressed in the future. The Commission will be gathering substantive data and information for further analysis and possible policy consideration. Future policy development or statements may be identified in the following areas.

1. Basic Skills
2. Guidance, Counseling, Placement and Career Development Services
3. Professional Development
4. Resources
5. Evaluation and Accountability
6. Educational Levels
7. Funding
8. Duplication
9. Transition and Articulation
10. Curriculum
11. Vocational Education Offerings
    a. Obsolescence
    b. Relevance to (Changing) Labor Market Demands
    c. Cost-Effectiveness/Cost Benefit
12. Technical Education and Training for Adults
13. Definitions

V. APPENDICES

A. The Population Base

B. The Indiana Economy

C. Excerpts from Public Law 217, Acts of 1987

D. Occupationally Specific Programs

E. Analysis of Supply and Demand

F. References

APPENDIX

A. The Population Base

As we look toward the next decade facing education at all levels in Indiana, certain facts about the number and nature of the students to be served and the population in general are important to consider.

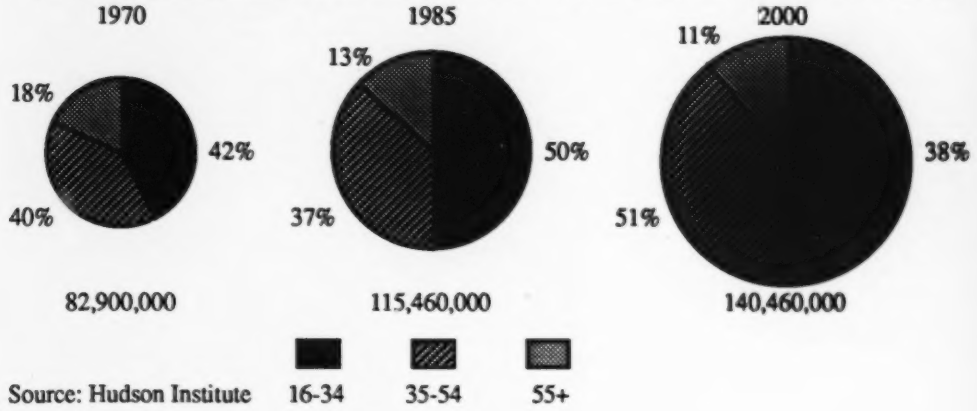
The aging of the baby boom generation will cause the Indiana population to become much older, on average, throughout the balance of the century. The median age of the population, which had been declining until 1970, will reach 36 by the year 2000. Age distribution in 1980 and 2020 for Indiana paints an interesting picture.

TABLE I

	1980		2000		2010		2020	
Age Group	Number	% of Total	Number	% of Total	Number	% of Total	Number	% of Total
0-14	1,306,950	24	1,122,650	20	1,048,850	18	1,003,050	18
15-19	529,690	10	422,770	7	395,160	7	370,990	6
20-34	1,393,350	25	1,243,900	22	1,190,130	21	1,137,300	20
35-49	880,680	16	1,303,580	23	1,225,310	21	1,125,870	20
50-64	795,530	14	874,300	15	1,124,470	20	1,156,240	20
65+	585,690	11	698,580	13	737,420	13	931,270	16
Total:	5,491,890		5,665,780		5,721,340		5,724,720	

Source: Indiana State Board of Health, 1988

THE MIDDLE AGING OF THE WORK FORCE



Source: Hudson Institute

Numbers and percentages in the 35-49 age group have been increasing substantially since 1980 and are expected to continue through 2000. This age group includes the prime working ages, made up of workers with health, vigor, experience, ambition, and reliability. Those individuals, and those in the 50-64 age group which also is increasing, tend to be concentrated in declining industries and may be less flexible and more resistant to change than the younger groups. At the same time, both the numbers and percentages of workers at entry-level ages are declining.

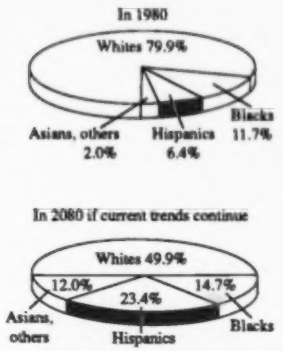
The Hudson Institute Study summarizes the implications of these changes very well.

"In the short term, Indiana's early 1980s shake-out of young, inexperienced workers is a plea from employers who prefer a well-qualified, stable, experienced labor force. Before 2000, however, a solid majority of working age Hoosiers will reach a stage of life when workers are reluctant to move and hard to retrain. This problem may last a long time. By 2020, the federal 'middle' projection for the nation shows a historic novelty: more 60 year-olds than 18 year-olds, and more at ages 55-59 than in *any* younger five-year age group."

The number of high school graduates will decrease by more than 10,000 between 1987

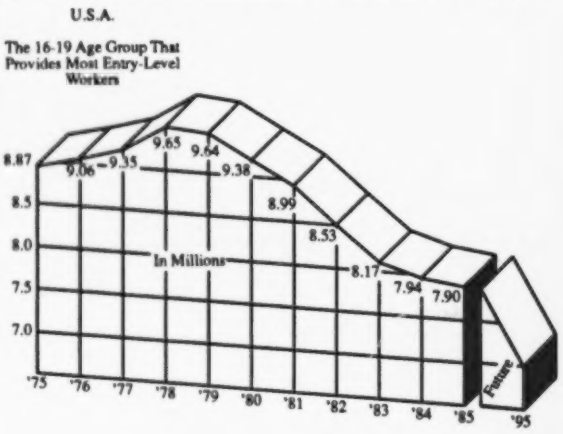
and the year 2000. A greater proportion of these graduates will be members of some minority groups and the numbers of youth in the 16-19 age group will drop significantly.

U.S. POPULATION TRENDS

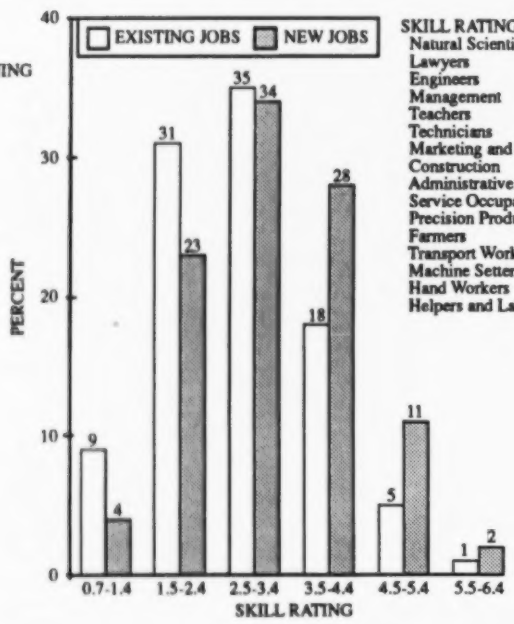


USN&WR—Basic data: Population Reference Bureau, Inc.

A DWINDLING FORCE IN THE WORK FORCE



LOW SKILLED JOBS ARE DECLINING



SKILL RATINGS OF TYPICAL JOBS	
Natural Scientists	5.7
Lawyers	5.2
Engineers	5.1
Management	4.4
Teachers	4.2
Technicians	4.1
Marketing and Sales	3.4
Construction	3.2
Administrative	2.9
Service Occupations	2.6
Precision Production	2.5
Farmers	2.3
Transport Workers	2.2
Machine Setters	1.8
Hand Workers	1.7
Helpers and Laborers	1.3

Source: Hudson Institute

"For minority workers, the changes in the nation's demography and economy during the 1990s represent both a great risk and a great opportunity. With fewer new young workers entering the workforce, employers will be hungry for qualified people and more willing to offer jobs and training to those they have traditionally ignored. At the same time, however, the types of jobs being created by the economy will demand much higher levels of skills than the jobs that exist today." (Workforce 2000)

"Now is the time to renew the emphasis on education, training and employment assistance for minorities that has been pursued with limited success over the past several decades. These investments will be needed, not only to insure that employers have a qualified workforce in the years after 2000 but finally to guarantee the equality of opportunity that has been America's great unfulfilled promise." (Workforce 2000)

"Traditional job training and employment programs by themselves are unlikely to have profound impacts on the future success of minority youth. Unless the...public educational system can somehow be better harnessed to serve minority, youth, the...Job Training Partnership Act system can make only a small dent in the problem." (Workforce 2000)

The increase in 35-49 year olds and the decrease in high school age students should have a major impact on a shift in programs and funding needs at the state level. The increase in 35-49 year olds will have an impact on the delivery and location of programs.

The American family is undergoing great changes resulting in a change in the backgrounds of our students. Of the 3.6 million children who began schooling in the U.S. in 1987:

25% came from families who lived in poverty.
14% were children of teenage mothers.
15% were physically or mentally handicapped.
14% were children of unmarried parents.
10% had poorly educated, illiterate parents.
30% were latchkey children with no one to greet them when they came home.

Unless the current situation changes, at least 25% will not graduate from high school.

Summary

These trends have important implications for the economy and education system of Indiana, particularly when combined with the economic trends discussed earlier.

For the next couple of decades, Indiana will have a larger number of mature, experienced and motivated workers. Many of these, however, will require retraining and relocation due to changes in the economy, but are at an age and stage of life where change is difficult. At the same time, the entry-level age cadre will be shrinking and also will consist of a substantial and increasing number of disadvantaged and handicapped youth.

In the longer run, the age group making up the workforce will become a smaller percentage of the total population. Each worker will then have to produce more goods and services to support an increasing number of people, or the standard of living will continue to decline.

APPENDIX

B. The Indiana Economy

Indiana's economy has been a varied one with a strong agricultural production base and great concentration in durable goods manufacturing, particularly in relation to the automobile and primary metal industries. Compared with the total national economy, Indiana has a sixfold greater concentration in steel, three-fold in other primary metals and automobiles, and more than double the concentration in electrical machinery and furniture.

Many of Indiana's historical strengths of employment are those where substitution of capital for labor has resulted in a substantial decline in the number of jobs. This is a trend, of course, which has been present in agricultural production for 200 years. More recently, however, manufacturing has become subject to the same economic forces. According to the Bureau of Labor Statistics, the percent of Indiana labor force in manufacturing has declined from 38 percent in 1970 to 28 percent in 1985. Further, the percentage decline of workers in durable goods manufacturing, a component of manufacturing, has been even greater.

For the nation, the number of manufacturing jobs remained relatively constant between 1970 and 1985, despite the declining percentage of the workforce in manufacturing. In Indiana, during that time, the total manufacturing jobs decreased by approximately 10 percent. Since 1986, however, there has been a slight increase in the number of manufacturing jobs.

There is every indication that this trend will continue. Foreign competition is forcing U.S. manufacturing to become more efficient if it is to compete in world markets. This essentially means substituting more capital for labor, hence fewer jobs. Steel is an excellent example. Indiana has become the nation's leading steel-producing state and appears destined to remain so. Yet, because of the expensive substitution of capital for labor, there are bound to be fewer jobs for steel workers if Indiana plants are to remain competitive.

In the 1940s, 50s, and 60s, manufacturing jobs abounded in Indiana. They paid high wages and generally did not require an extensive educational background. In 1975, there were 125 corporations hiring over 1,000 employees; by 1985, this number had declined to 50 corporations. At the same time small business, hiring 20 or less employees, increased by 25 percent. Those manufacturing jobs remaining will require a much stronger vocational and technical education background than has been true in the past.

According to the Bureau of Labor Statistics, Indiana employment in nondurable manufacturing has remained relatively constant in the past 15 years, though declining as a percentage of total employment. It seems that such employment will show some decline in the future, unless new industries can be developed or attracted.

At both the national and state levels, the big increase in employment has been in nonmanufacturing (including services) areas. According to *Workforce 2000*, a shift in the mix of occupations will continue to move toward the nonmanufacturing employment. This can be illustrated by the following tables.

	U.S. Nonmanufacturing Employment	Percent of Total	Indiana Nonmanufacturing Employment	Percent of Total
1970	51,571,000	72	1,138,800	61
1985	78,273,000	80	1,565,600	71

Source: Bureau of Labor Statistics

EMPLOYMENT IN GOODS PRODUCTION WILL DECLINE BY THE YEAR 2000
(Millions of Workers)

	1985		2000		CHANGE (1985-2000)	
	Number*	Share	Number	Share	Number	Percent
TOTAL	107.16	100.00%	130.96	100.00%	23.81	22.22%
Goods						
Total	28.21	26.32%	25.74	19.65%	-2.47	-8.76%
Farm, Forest, Fishing	3.14	2.93%	2.67	2.04%	-0.47	-14.88%
Mining	0.97	0.90%	0.79	0.60%	-0.18	-18.68%
Construction	4.66	4.35%	5.06	3.86%	0.40	8.52%
Manufacturing	19.44	18.14%	17.22	13.15%	-2.22	-11.42%
Durable	11.58	10.81%	10.51	8.02%	-1.08	-9.28%
Nondurable	7.86	7.34%	6.72	5.13%	-1.15	-14.57%
Services						
Total	72.62	67.77%	96.51	73.69%	23.89	32.90%
Fin. Ins. & Real Estate	5.92	5.53%	8.12	6.20%	2.19	37.02%
Wholesale & Retail Trade	23.19	21.64%	30.37	23.19%	7.18	30.95%
Regulated Industries	5.29	4.94%	5.76	4.40%	0.47	8.92%
Other Services	21.92	20.46%	32.16	24.56%	10.24	46.71%
Government	16.30	15.21%	20.10	15.35%	3.81	23.37%

*Excludes self-employment
Source: Hudson Institute

Actually, the United States had a remarkable record of job creation during the 1970s, surpassing most of the world's other industrial nations to a substantial degree. Most of these new jobs were in the nonmanufacturing (including service) sector, particularly wholesale and retail trade and other service areas. The same thing was true in Indiana. All signs point to a continuation of these trends, both at the state and national levels. (See projections in table above.)

The Hudson Institute Study, *Vocational Education and Economic Development in Indiana: Prospects and Policies for the Future,* (January, 1987), included the following summary of the impact of economic factors on employment opportunities in Indiana:

> Employment growth will occur mainly in the nonmanufacturing sector, but that growth is likely to be moderate at best. As manufacturing employment continues to shrink, a major source of stimulus for the Indiana economy will be attentuated. Historically, it has been the manufacturing sector that brought income into the state in return for the products it shipped outside the state. Those portions of the service sector that could provide similar stimulus in the form of income flows are relatively small in Indiana and show only limited prospects for growth. As a result, the local services sector also shows limited prospects for growth, particularly in light of demographic trends (as discussed elsewhere) that suggests that population growth will not be a major factor in overall growth in the state.

It is impossible to predict exactly what will happen to Indiana's economy in the years ahead, or exactly the type of job opportunities which will exist. Certain general trends, however, appear inevitable.

The number of manufacturing jobs will not increase, much if any. There will be a declining demand for the traditional production-line worker. More highly technically trained people will be needed in the average manufacturing plant. Continual upgrade and retraining of manufacturing and many service workers will be required. "Technology will introduce change and turbulence into every industry and every job. In particular, the necessity for constant learning will be a certain outgrowth of technological innovation." (Workforce 2000, p. 37)

Increases in employment will largely come in the nonmanufacturing sector, probably in those classified as service, retail trades, wholesale trades, and various professional areas. According to the Indiana Labor and Management Council and others, basic skills in reading, writing, mathematics and communication as well as flexibility (teamwork), will be very important in many of these jobs. Again, ability to learn new techniques and processes will be vital. Further, each area of

the state will continue to need a cadre of repair and maintenance workers for automobiles, electronic equipment, and similar categories, and also skilled workers in skilled crafts such as construction and related trades.

Recognizing the difficulty of identifying future directions and impacts of technology on Indiana's economic development, a number of initiatives have been established over the past number of years to address this dilemma.

In the early 1980s, the legislature created the Indiana Corporation for Science and Technology (CST) to assist in the economic thrust through the development and application of science and technology.

"In 1987, a group of over 500 scientific, engineering, educational and business experts associated with the Corporation for Science and Technology (CST) predicted that 'the world is on the verge of a major lifestyle, business, industry and educational upheaval, an upheaval which will be fueled by rapid technological growth and by a very competitive worldwide marketplace. This upheaval brings with it major threats and opportunities to the business and economic base of the United States, including that of the State of Indiana'."

"Since its inception, the Corporation for Science and Technology (CST) has methodically sought after a better view of the future...a better identification of the oncoming threats and opportunities. . .and a better plan with which to deal with both."

A committee was formed to identify the primary technological areas that are likely to serve as major catalysts in this upheaval with the following 13 technologies identified: 1) Advanced Materials Technology, 2) Agricultural Genetics and Technology, 3) Artificial Intelligence, 4) Biotechnology, 5) Control Systems, 6) Energy Development 7) Information Processing, 8) Industrial Byproducts, 9) Manufacturing Technology, 10) Microelectronics, 11) Optical Technology, 12) Telecommunications, and 13) Medical Technology.

As a result of this investment in collective "futuring", further projections developed by the Education and Vocational Training subcommittee of CST included:

- *More interactive, expert-system, computer-based education with teachers serving more and more as the managers of the information transfer process rather than the dispensers of the information.

- *More stress toward the individual "teaching prescription" approach in which the teaching speed and depth of coverage is tailored electronically to the students ability to learn.

- *Increased simulation in laboratory courses rather than actual laboratory work, especially in the sophisticated, hard to do experiments. . .resulting in an increased understanding by the student of the actual lesson to be learned. . .heavily expert-system driven to ensure that the student is receiving understandable information.

- *More real-time feedback information to allow the teacher to monitor the progress of the student and the level of understanding.

- *More study being accomplished at home and results transmitted to the school...offering a greater ability to teach elective subjects and teach them well.

Summary

Employment growth will occur mainly in the nonmanufacturing sector. Technology will introduce change and turbulence into every industry and every job. Each individual, both in school environments and the workforce, will need both the basics and job skills and should expect to be involved in a constant learning mode if the State of Indiana is to be competitive both nationally and internationally. The human resource is the critical factor for economic development in the future.

APPENDIX

C. Excerpts from Public Law 217, Acts of 1987

Excerpts from Indiana Code 20-1-18.3 are the statutory foundation for the Indiana Commission on Vocational and Technical Education.

Section 10. Long-range State Plan

(a) The commission shall develop and implement a long-range state plan for a comprehensive vocational education program in Indiana.

(b) This plan shall be kept current. The plan and any revisions made to this plan shall be made available to the governor, the general assembly, the state board of education, the commission for higher education, the department of employment and training services, the job training coordinating council, the council on vocational education, the commission for postsecondary proprietary education, and any other appropriate state or federal agency.

(c) The plan must set forth specific goals for public vocational education at all levels and must include the following:

(1) The preparation of each graduate for both employment and further education.

(2) Accessibility of vocational education to persons of all ages who desire to explore and learn for economic and personal growth.

(3) Projected employment opportunities in various vocational and technical fields.

(4) A study of the supply of and the demand for a labor force skilled in particular vocational and technical areas.

(5) A study of technological and economic change affecting Indiana.

(6) An analysis of the private vocational sector in Indiana.

(7) Recommendations for improvement in the state vocational education program.

(8) The educational levels expected of programs proposed to meet the projected employment needs.

Section 11. Duties of Commission

The commission shall also do the following:

(1) Make recommendations to the general assembly concerning the development, duplication, and accessibility of employment training and vocational education on a regional and statewide basis.

(2) Consult with any state agency, commission, or organization that supervises or administers programs of vocational education concerning the coordination of vocational education, including the following:

(A) The department of commerce.
(B) The job training coordinating council.
(C) The department of employment and training services.
(D) A private industry council (as defined in 29 U.S.C. 1501 et seq.,).
(E) The department of labor.
(F) The commission on proprietary education.
(G) The commission for higher education.
(H) The state board of education.

(3) Review and make recommendations concerning plans submitted by the state board of education, the commission for higher education, and the department of employment and training services. The commission may request the resubmission of plans or parts of plans that do not meet the following criteria:

(A) Consistency with the long-range state plan of the commission.
(B) Evidence of compatibility of plans within the system.
(C) Avoidance of duplication of existing services.

(4) Report to the general assembly on the commission's conclusions and recommendations concerning interagency cooperation, coordination, and articulation of vocational education and employment training.

(5) Study and develop a plan concerning the transition between secondary level vocational education and postsecondary level vocational education.

(6) Enter into agreements with the federal government that may be required as a condition of receiving federal funds under the Vocational Education Act (20 U.S.C. 2301 et seq.,). An agreement entered into under this subdivision is subject to the approval of the state budget agency.

Section 12. Powers of Commission

The commission may do the following:

(1) Make recommendations to the governor, the general assembly, and the various agencies, commissions, or organizations that administer vocational education programs concerning all facets of vocational education programming, including recommendations for policies to encourage involvement of minority groups in the vocational education system in Indiana.

(2) Establish a regional planning and coordination system for vocational education and employment training that will, either in whole or in part, serve vocational education and employment training in Indiana.

(3) Appoint advisory committees whenever necessary.

(4) Contract for services necessary to carry out this chapter.

(5) Provide information and advice on vocational education to a business, industry, or labor organization operating a job training program in the private sector.

Section 13. Vocational Education Evaluation Criteria

The commission shall establish vocational education evaluation criteria and, using the criteria, evaluate the effectiveness of vocational education relative to the goals of the long-range plan developed under section 10 of this chapter.

Section 14. Federal Funds

(a) Except as provided in subsection (c), the commission shall receive, distribute, and maintain accountability for all federal funds available for vocational education under 20 U.S.C. 2301 et seq.,

(b) Except as provided in subsection (c), the commission shall distribute and maintain accountability for all federal funds available for vocational education under 29 U.S.C. 1533,.

(c) The commission may not expend or distribute federal funds available under 20 U.S.C. 2301 et seq. or 29 U.S.C. 1533 if those funds have not been allocated by the general assembly.

Section 15. Legislative Budget Requests for Vocational Education: Review and Recommendations

(a) The commission shall review the legislative budget requests for vocational education prepared by the following:

(1) The department of education.

(2) The state educational institutions.

(3) The department of employment and training services.

(b) After its review under subsection (a), the commission shall make recommendations to the budget committee concerning the appropriation of state funds and the allocation of federal funds for vocational education, including federal funds available under 20 U.S.C. 2301 et seq., and 29 U.S.C. 1533,. The commission's recommendations concerning appropriations and allocations for vocational education by secondary schools and state educational institutions must specify:

(1) the minimum funding levels required by 20 U.S.C. 2301 et seq., and 29 U.S.C. 1533;

(2) the categories of expenditures and the distribution plan or formula, for secondary schools; and

(3) the categories of expenditures for each state education institution.

(c) After reviewing the commission's recommendations and each agency's budget request, the budget committee shall make recommendations to the general assembly for funding to implement vocational education. The general assembly shall biennially appropriate state funds for vocational education and allocate federal funds available under 20 U.S.C. 2301 et seq., and 29 U.S.C. 1533, for vocational education. At least sixty percent (60%) of the federal funds available under 20 U.S.C. 2301 et seq., shall be allocated to secondary level vocational education for the purpose of implementing the long-range state plan developed under section 10 of this chapter.

(d) The budget agency, with the advice of the commission and the budget committee, may augment or reduce an allocation of federal funds made under subsection (c).

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29 U.S.C. 1501 et. seq.	Job Training Partnership Act (JTPA)
20 U.S.C. 2301 et. seq.	Carl D. Perkins Federal Vocational Education Act of 1984
29 U.S.C. 1533 et. seq.	Job Training Partnership Act (JTPA) Title I, Part B, Section 123 State Education Coordination and Grants.

APPENDIX D: Occupationally Specific Programs

01 AGRIBUSINESS AND AGRICULTURE PRODUCTION

01.0101 Agricultural Business and Management, General
01.0102 Agricultural Business
01.0104 Farm and Ranch Management
01.0199 Agricultural Business and Management, Other
01.0201 Agricultural Mechanics, General
01.0202 Agricultural Electrification, Power, and Controls
01.0203 Agricultural Mechanics, Construction, and Maintenance Skills
01.0204 Agricultural Power Machinery
01.0205 Agricultural Structures, Equipment, and Facilities
01.0206 Soil and Water Mechanical Practices
01.0299 Agricultural Mechanics, Other
01.0301 Agricultural Production, General
01.0302 Animal Production
01.0303 Aquaculture
01.0304 Crop Production
01.0305 Game Farm Management
01.0399 Agricultural Production, Other
01.0401 Agricultural Products and Processing, General
01.0402 Food Products
01.0499 Agricultural Products and Processing, Other
01.0501 Agricultural Services and Supplies, General
01.0502 Agricultural Services
01.0503 Agricultural Supplies Marketing
01.0504 Pet Grooming
01.0505 Animal Training
01.0506 Horseshoeing
01.0507 Horse Handling and Care
01.0599 Agricultural Services and Supplies, Other
01.0601 Horticulture, General
01.0602 Arboriculture
01.0603 Ornamental Horticulture
01.0604 Greenhouse Operation and Management
01.0605 Landscaping
01.0606 Nursery Operation and Management
01.0607 Turf Management
01.0699 Horticulture, Other
01.9999 Agribusiness and Agricultural Production, Other

02 AGRICULTURAL SCIENCES

02.0203 Animal Health

03 RENEWABLE NATURAL RESOURCES

03.0101 Renewable Natural Resources, General
03.0201 Conservation and Regulation, General
03.0202 Conservation
03.0203 Resources Protection and Regulation
03.0299 Conservation and Regulation, Other
03.0301 Fishing and Fisheries
03.0401 Forestry Production and Processing, General
03.0402 Forest Production
03.0403 Forest Products Utilization
03.0404 Forest Products Processing Technology
03.0405 Logging
03.0499 Forestry Production and Processing, Other
03.0601 Wildlife Management
03.9999 Renewable Natural Resources, Other

04 ARCHITECTURE AND ENVIRONMENTAL DESIGN

04.0501 Interior Design

06 BUSINESS AND MANAGEMENT

06.0401 Business Administration and Management, General
06.0701 Hotel/Motel Management
06.0702 Recreational Enterprises Management
06.0703 Resort Management
06.0704 Restaurant Management
06.0705 Transportation Management
06.0799 Institutional Management, Other
06.1101 Labor/Industrial Relations
06.1701 Real Estate
06.1801 Small Business Management and Ownership
06.1901 Taxation
06.2001 Trade and Industrial Supervision and Management
06.9999 Business and Management, Other

07 BUSINESS (ADMINISTRATIVE SUPPORT)

07.0101 Accounting, Bookkeeping, and Related Programs, General
07.0102 Accounting and Computing
07.0103 Bookkeeping
07.0104 Machine Billing, Bookkeeping, and Computing
07.0199 Accounting, Bookkeeping, and Related Programs, Other
07.0201 Banking and Related Financial Programs, General 07.0203 Insurance Clerk
07.0205 Teller
07.0299 Banking and Related Financial Programs, Other
07.0301 Business Data Processing and Related Programs, General
07.0302 Business Computer and Console Operation
07.0303 Business Data Entry Equipment Operation
07.0304 Business Data Peripheral Equipment Operation
07.0305 Business Data Programming
07.0306 Business Systems Analysis
07.0399 Business Data Processing and Related Programs, Other
07.0401 Office Supervision and Management
07.0501 Personnel and Training Programs, General
07.0502 Training Assisting
07.0503 Personnel Assisting
07.0599 Personnel and Training Programs, Other
07.0601 Secretarial and Related Programs, General
07.0602 Court Reporting
07.0603 Executive Secretarial
07.0604 Legal Secretarial
07.0605 Medical Secretarial
07.0606 Secretarial
07.0607 Stenographic
07.0699 Secretarial and Related Programs, Other
07.0701 Typing, General Office, and Related Programs, General
07.0702 Clerk-Typist
07.0703 Correspondence Clerk
07.0704 Duplicating Machine Operation
07.0705 General Office Clerk
07.0707 Receptionist and Communication Systems Operation
07.0708 Shipping, Receiving, and Stock Clerk
07.0709 Traffic, Rate, and Transportation Clerk
07.0799 Typing, General Office, and Related Programs, Other
07.0801 Word Processing
07.9999 Business (Administrative Support), Other

08 MARKETING AND DISTRIBUTION

08.0101 Apparel and Accessories Marketing, General
08.0102 Fashion Merchandising

08.0103 Fashion Modeling
08.0104 Footwear Marketing
08.0105 Jewelry Marketing
08.0199 Apparel and Accessories Marketing, Other
08.0201 Business and Personal Services Marketing, General
08.0202 Display
08.0203 Marketing of Business or Personal Services
08.0299 Business and Personal Services Marketing, Other
08.0301 Entrepreneurship
08.0401 Financial Services Marketing
08.0501 Floristry, Farm and Garden Supplies Marketing, General
08.0502 Farm and Garden Supplies Marketing
08.0503 Floristry
08.0599 Floristry, Farm and Garden Supplies Marketing, Other
08.0601 Food Marketing, General
08.0602 Convenience Store Marketing
08.0603 Specialty Foods Marketing
08.0604 Supermarket Marketing
08.0605 Wholesale Food Marketing
08.0699 Food Marketing, Other
08.0701 Auctioneering
08.0702 Industrial Sales
08.0703 International Marketing
08.0704 Purchasing
08.0705 Retailing
08.0706 Sales
08.0707 Wholesaling
08.0708 Marketing, General
08.0799 General Marketing, Other
08.0801 Home and Office Products Marketing, General
08.0802 Appliance Marketing
08.0803 Building Materials Marketing
08.0805 Furniture Marketing
08.0806 Hardware Marketing
08.0807 Office Products and Equipment Marketing
08.0808 Specialty Home Furnishings Marketing
08.0899 Home and Office Products Marketing, Other
08.0901 Hospitality and Recreation Marketing, Other
08.0902 Marketing of Hotel/Motel Services
08.0903 Marketing of Recreational Services
08.0904 Recreational Products Marketing
08.0905 Waiter/Waitress and Related Services
08.0999 Hospitality and Recreation Marketing, Other
08.1001 Insurance Marketing
08.1101 Transportation and Travel Marketing, General
08.1102 Transportation Marketing
08.1104 Tourism
08.1105 Travel Services Marketing
08.1106 Warehouse Services Marketing
08.1199 Transportation and Travel Marketing, Other
08.1201 Vehicles and Petroleum Marketing, General
08.1203 Automotive Vehicles and Accessories Marketing
08.1204 Petroleum Wholesaling
08.1205 Recreational Vehicles and Accessories Marketing
08.1206 Service Station Retailing
08.1207 Vehicle Rental and Leasing
08.1299 Vehicles and Petroleum Marketing, Other
08.9999 Marketing and Distribution, Other

09 COMMUNICATIONS

09.0201 Advertising
09.0401 Journalism (Mass Communications)

10 COMMUNICATIONS TECHNOLOGIES

10.0101 Educational Media Technology
10.0102 Motion Picture Technology
10.0103 Photographic Technology
10.0104 Radio and Television Production and Broadcasting Technology
10.0105 Sound Recording Technology
10.0106 Video Technology
10.0199 Communications Technologies, Other

11 COMPUTER AND INFORMATION SCIENCES

11.0201 Computer Programming
11.0301 Data Processing
11.0401 Information Sciences and Systems
11.0601 Microcomputer Applications
11.9999 Computer and Information Sciences, Other

12 CONSUMER, PERSONAL AND MISCELLANEOUS SERVICES

12.0101 Drycleaning and Laundering Services
12.0202 Bartending
12.0203 Card Dealing
12.0204 Umpiring
12.0299 Entertainment Services, Other
12.0301 Funeral Services
12.0401 Personal Services, General
12.0402 Barbering/Hairstyling
12.0403 Cosmetology
12.0404 Electrolysis
12.0405 Massage
12.0406 Make-up Artistry
12.0499 Personal Services, Other
12.9999 Consumer, Personal and Miscellaneous Services, Other

13 EDUCATION

13.0202 Bilingual Education Assisting
13.1501 Teacher Assisting

15 ENGINEERING RELATED TECHNOLOGIES

15.0101 Architectural Design and Construction Technology
15.0102 Architectural Interior Design Technology
15.0199 Architectural Technologies, Other
15.0201 Civil Technology
15.0202 Drafting and Design Technology
15.0203 Surveying and Mapping Technology
15.0204 Urban Planning Technology
15.0299 Civil Technologies, Other
15.0301 Computer Technology
15.0302 Electrical Technology
15.0303 Electronic Technology
15.0304 Laser Electro-Optic Technology
15.0399 Electrical and Electronic Technologies, Other
15.0401 Biomedical Equipment Technology
15.0402 Computer Servicing Technology
15.0403 Electromechanical Technology
15.0404 Instrumentation Technology
15.0405 Robotics Technology
15.0499 Electromechanical Instrumentation and Maintenance Technologies, Other
15.0501 Air Conditioning, Heating, and Refrigeration Technology
15.0502 Air Pollution Control Technology
15.0503 Energy Conservation and Use Technology
15.0504 Sanitation Technology
15.0505 Solar Heating and Cooling Technology

15.0506 Water and Wastewater Technology
15.0599 Environmental Control Technologies, Other
15.0602 Food Processing Technology
15.0603 Industrial Technology
15.0606 Optical Technology
15.0607 Plastic Technology
15.0609 Textile Technology
15.0610 Welding Technology
15.0699 Industrial Production Technologies, Other
15.0701 Occupational Safety and Health Technology
15.0702 Quality Control Technology
15.0799 Quality Control and Safety Technologies, Other
15.0801 Aeroneutical Technology
15.0803 Automotive Technology
15.0804 Marine Propulsion Technology
15.0805 Mechanical Design Technology
15.0899 Mechanical and Related Technologies, Other
15.0901 Coal Mining Technology
15.0902 Mining (Excluding Coal) Technology
15.0903 Petroleum Technology
15.0999 Mining and Petroleum Technologies, Other
15.1001 Construction Technology, Other
15.9999 Engineering and Engineering-Related Technologies, Other

17 ALLIED HEALTH

17.0101 Dental Assisting
17.0102 Dental Hygiene
17.0103 Dental Laboratory Technology
17.0199 Dental Services, Other
17.0201 Cardiovascular Technology
17.0202 Dialysis Technology
17.0203 Electrocardiograph Technology
17.0204 Electroencephalograph Technology
17.0205 Emergency Medical Technology-Ambulance
17.0206 Emergency Medical Technology-Paramedic
17.0207 Medical Radiation Dosimetry
17.0208 Nuclear Medical Technology
17.0209 Radiologic (Medical) Technology
17.0210 Respiratory Therapy Technology
17.0211 Surgical Technology
17.0212 Diagnostic Medical Sonography
17.0299 Diagnostic and Treatment Services, Other
17.0301 Blood Bank Technology
17.0302 Chemistry Technology
17.0303 Clinical Animal Technology
17.0304 Clinical Laboratory Aide
17.0305 Clinical Laboratory Assisting
17.0306 Cytotechnology
17.0307 Hematology Technology
17.0308 Histologic Technology
17.0309 Medical Laboratory Technology
17.0310 Medical Technology
17.0311 Microbiology Technology
17.0399 Medical Laboratory Technologies, Other
17.0401 Alcohol/Drug Abuse Specialty
17.0402 Community Health Work
17.0404 Home Health Aide
17.0405 Mental Health/Human Services Assisting
17.0406 Mental Health/Human Services Technology
17.0407 Rehabilitation Counseling
17.0408 Therapeutic Child Care Work
17.0409 Population and Family Planning
17.0410 Sign Language Interpreting

17.0499 Mental Health/Human Services, Other
17.0502 Central Supply Technology
17.0503 Medical Assisting
17.0504 Medical Illustrating
17.0505 Medical Office Management
17.0506 Medical Records Technology
17.0507 Pharmacy Assisting
17.0508 Physician Assisting
17.0510 Podiatric Assisting
17.0512 Veterinarian Assisting
17.0513 Health Unit Coordinating
17.0514 Chiropractic Assisting
17.0599 Miscellaneous Allied Health Services, Other
17.0601 Geriatric Aide
17.0602 Nursing Assisting
17.0605 Practical Nursing
17.0606 Health Unit Management
17.0699 Nursing-Related Services, Other
17.0701 Ophthalmic Dispensing
17.0705 Optometric Technology
17.0799 Ophthalmic Services, Other
17.0801 Art Therapy
17.0802 Corrective Therapy
17.0803 Dance Therapy
17.0804 Exercise Physiology
17.0806 Music Therapy
17.0807 Occupational Therapy
17.0808 Occupational Therapy Assisting
17.0809 Occupational Therapy Aide
17.0811 Orthotics/Prosthetics
17.0812 Orthopedic Assisting
17.0813 Physical Therapy
17.0814 Physical Therapy Aide
17.0815 Physical Therapy Assisting
17.0816 Recreational Therapy
17.0817 Recreational Therapy Assisting
17.0818 Respiratory Therapy
17.0819 Respiratory Therapy Assisting
17.0820 Speech/Hearing Therapy Aide
17.0822 Recreational Therapy Aide
17.0899 Rehabilitation Services, Other
17.9999 Allied Health, Other

18 HEALTH SCIENCES

18.1101 Nursing, General

20 VOCATIONAL HOME ECONOMICS

20.0100 Consumer and Homemaking
20.0101 Orientation to the World of Work
20.0102 Child Development, Care and Guidance
20.0103 Clothing and Textiles
20.0104 Consumer Education
20.0106 Family/Individual Health
20.0107 Family Living and Parenthood
20.0108 Food and Nutrition
20.0109 Home Management
20.0110 Housing, Home Furnishings and Equipment
20.0201 Child Care and Guidance Management and Services, General
20.0202 Child Care Aide/Assisting
20.0203 Child Care Management
20.0204 Foster Care/Family Care
20.0299 Child Care and Guidance Management and Services, Other

20.0301 Clothing, Apparel, and Textiles Mgmt., Production, and Services, General
20.0302 Clothing Maintenance Aide
20.0303 Commerical Garment and Apparel Construction
20.0304 Custom Apparel/Garment Seamstress
20.0305 Custom Tailoring and Alteration
20.0306 Fashion/Fabric Coordination
20.0308 Wedding/Specialty Consulting
20.0399 Clothing, Apparel, and Textiles Management, Production, and Services, Other
20.0401 Food Production, Management, and Services, General
20.0402 Baking
20.0403 Chef/Cook
20.0404 Dietetic Aide/Assisting
20.0405 Food Catering
20.0408 School Food Service
20.0499 Food Production, Management, and Services, Other
20.0501 Home Furnishings and Equipment Management, Production and Services, General
20.0502 Custom Drapery and Window Treatment Design/Making
20.0503 Custom Slipcovering and Upholstering
20.0504 Floral Design
20.0505 Home Decorating
20.0506 Home Furnishings Aide
20.0507 Home Service Assisting
20.0599 Home Furnishings and Equipment Management, Production, and Services, Other
20.0601 Institutional, Home Management, and Supporting Services, General
20.0602 Companion to the Aged
20.0603 Consumer Aide/Assisting
20.0604 Custodial Services
20.0605 Executive Housekeeping
20.0606 Homemaker's Aide
20.0699 Institutional, Home Management, and Supporting Services, Other
20.9999 Vocational Home Economics, Other

22 LAW

22.0103 Legal Assisting

25 LIBRARY AND ARCHIVAL SCIENCES

25.0301 Library Assisting

31 PARKS AND RECREATION

31.0201 Outdoor Recreation
31.0301 Parks and Recreation Management
31.9999 Parks and Recreation, Other

41 SCIENCE TECHNOLOGIES

41.0101 Biological Laboratory Technology
41.0102 Oceanographic (Biological) Technology
41.0199 Biological Technologies, Other
41.0201 Nuclear Materials Handling Technology
41.0202 Nuclear Power Plant Operation Technology
41.0203 Nuclear Power Plant Radiation Control Technology
41.0204 Radiologic (Physical) Technology
41.0299 Nuclear Technologies, Other
41.0301 Chemical Technology
41.0302 Geological Technology
41.0303 Metallurgical Technology
41.0304 Meteorological Technology
41.0305 Oceanographic (Physical) Technology
41.0399 Physical Science Technologies, Other
41.9999 Science Technologies, Other

43 PROTECTIVE SERVICES

43.0101 Correctional Administration
43.0102 Corrections
43.0103 Criminal Justice Administration
43.0104 Criminal Justice Studies
43.0105 Criminal Justice Technology
43.0106 Forensic Studies
43.0107 Law Enforcement
43.0108 Law Enforcement Administration
43.0109 Security Services
43.0199 Criminal Justice, Other
43.0201 Fire Control and Safety Technology
43.0202 Fire Protection Administration
43.0203 Firefighting
43.0299 Fire Protection, Other
43.9999 Protective Services, Other

46 CONSTRUCTION TRADES

46.0101 Brickmasonry, Stonemasonry, and Tile Setting, General
46.0102 Brickmasonry, Block, and Stonemasonry
46.0103 Tile Setting
46.0199 Brickmasonry, Stonemasonry, and Tile Setting, Other
46.0201 Carpentry
46.0301 Electrical and Power Transmission Installation, General
46.0302 Electrician
46.0303 Lineworker
46.0399 Electrical and Power Transmission Installation, Other
46.0401 Building and Property Maintenance
46.0402 Concrete Placing and Finishing
46.0403 Construction Inspection
46.0404 Drywall Installation
46.0405 Floor Covering Installation
46.0406 Glazing
46.0407 Insulation Installation
46.0408 Painting and Decorating
46.0409 Plastering
46.0410 Roofing
46.0499 Miscellaneous Construction Trades and Property Maintenance, Other
46.0501 Plumbing, Pipefitting, and Steamfitting, General
46.0502 Pipefitting and Steamfitting
46.0503 Plumbing
46.0599 Plumbing, Pipefitting, and Steamfitting, Other
46.9999 Construction Trades, Other

47 MECHANICS AND REPAIRERS

47.0101 Electrical and Electronics Equipment Repair, General
47.0102 Business Machine Repair
47.0103 Communication Electronics
47.0104 Computer Electronics
47.0105 Industrial Electronics
47.0106 Major Appliance Repair
47.0107 Motor Repair
47.0108 Small Appliance Repair
47.0109 Vending and Recreational Machine Repair
47.0199 Electrical and Electronics Equipment Repair, Other
47.0201 Heating, Air Conditioning, and Refrigeration Mechanics, General
47.0202 Cooling and Refrigeration
47.0203 Heating and Air Conditioning
47.0301 Industrial Equipment Maintenance and Repair, General
47.0302 Heavy Equipment Maintenance and Repair
47.0303 Industrial Machinery Maintenance and Repair
47.0304 Mine Equipment Maintenance and Repair

47.0305 Oil and Gas Drilling Equipment Operation and Maintenance
47.0399 Industrial Equipment Maintenance and Repair, Other
47.0401 Electromechanial, Hydraulic, and Pneumatic Instrument Repair
47.0402 Gunsmithing
47.0403 Locksmithing and Safe Repair
47.0404 Musical Instrument Repair
47.0405 Operation, Maintenance, and Repair of Audio-Visual Equipment
47.0407 Sporting Goods Equipment Repair
47.0408 Watch Repair
47.0499 Miscellaneous Mechanics and Repairers, Other
47.0501 Stationary Energy Sources, General
47.0502 Conventional Electrical Power Generation
47.0504 Pumping Plants
47.0599 Stationary Energy Sources, Other
47.0601 Vehicle and Mobile Equipment Mechanics and Repairers, General
47.0603 Automotive Body Repair
47.0604 Automotive Mechanics
47.0605 Diesel Engine Mechanics
47.0606 Small Engine Repair
47.0607 Aircraft Mechanics, Airframe
47.0608 Aircraft Mechanics, Powerplant
47.0699 Vehicle and Mobile Equipment Mechanics and Repairers, Other
47.9999 Mechanics and Repairers, Other

48 PRECISION PRODUCTION

48.0101 Drafting, General
48.0102 Architectural Drafting
48.0103 Civil/Structural Drafting
48.0104 Electrical/Electronics Drafting
48.0105 Mechanical Drafting
48.0199 Drafting, Other
48.0201 Graphic and Printing Communications, General
48.0202 Bookbinding
48.0203 Commercial Art
48.0204 Commercial Photography
48.0205 Typesetting, Make-up, and Composition
48.0206 Lithography, Photography, and Platemaking
48.0207 Photographic Laboratory and Darkroom
48.0208 Printing Press Operations
48.0209 Silk Screen Making and Printing
48.0210 Photoengraving
48.0299 Graphic and Printing Communications, Other
48.0301 Leatherworking and Upholstery, General
48.0302 Saddlemaking and Repair
48.0303 Upholstering
48.0304 Shoe and Boot Repair
48.0399 Leatherworking and Upholstering, Other
48.0401 Precision Food Production, General
48.0402 Meatcutting
48.0403 Slaughtering and Butchering
48.0499 Precision Food Production, Other
48.0501 Precision Metal Work, General
48.0502 Foundry Work
48.0503 Machine Tool Operation/Machine Shop
48.0504 Metal Fabrication
48.0505 Metal Patternmaking
48.0506 Sheet Metal
48.0507 Tool and Die Making
48.0508 Welding
48.0599 Precision Metal Work, Other
48.0601 Industrial Ceramics Manufacturing
48.0602 Jewelry Design, Fabrication, and Repair
48.0604 Plastics

48.0699 Precision Work, Assorted Materials, Other
48.0701 Woodworking, General
48.0702 Furniture Making
48.0703 Millwork and Cabinet Making
48.0799 Woodworking, Other
48.9999 Precision Production, Other

49 TRANSPORTATION AND MATERIAL MOVING

49.0101 Air Transportation, General
49.0102 Airplane Piloting and Navigation (Commercial)
49.0104 Aviation Management
49.0105 Air Traffic Control
49.0106 Flight Attendants
49.0107 Airplane Piloting (Private)
49.0199 Air Transportation, Other
49.0201 Vehicle and Equipment Operation, General
49.0202 Construction Equipment Operation
49.0203 Material Handling
49.0204 Mining Equipment Operation
49.0205 Truck and Bus Driving
49.0299 Vehicle and Equipment Operation, Other
49.0301 Water Transportation, General
49.0302 Barge and Boat Operations
49.0303 Commercial Fishing Operations
49.0304 Deep Water Diving and Life Support Systems
49.0305 Marina Operations
49.0306 Marine Maintenance
49.0308 Sailors and Deckhands
49.0399 Water Transportation, Other
49.9999 Transportation and Material Moving, Other

50 VISUAL AND PERFORMANCE ARTS

50.0402 Graphic Design
50.0403 Illustration Design
50.0404 Industrial Design
50.9999 Visual and Performing Arts, Other

APPENDIX

E. Analysis of Supply and Demand

The following information is provided through the Indiana Microcomputer Occupational Information System.

In the first reference, the system delineates approximately 150 clusters or groups of related occupations and training programs, for the State of Indiana. The 1980 actual employment and 1990 projected employment figures, along with the Average Annual Job Openings and Completer figures, can be used to find the ratio of total completers to actual job openings. In this manner, one can determine the over or under supply of individual workers by each cluster.

A closer look at the allied health area in terms of supply and demand illustrates that demand exceeds the cluster supply in this area. In addition to the allied health area, analysis of each cluster can be performed to provide specific information regarding supply and demand for that particular cluster.

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Cluster Code	Cluster Title	EMPLOYMENT		Average Annual Job Openings 1981-90	1984-85												Ratio of Total Completers to Job Openings	Over or (Under) Supply
					ENROLLMENT						COMPLETERS							
		1980	1990		Secondary	Post-secondary	Adult	Proprietary	Apprentice	Total	Secondary	Post-secondary	Adult	Proprietary	Apprentice	Total		
0100	Agricultural Business Management	7,760	8,470	392	187	182	390	0	1	760	124	38	130	0	0	292	0.74	(100)
0110	Agricultural Mechanics	625	860	52	436	0	256	0	0	692	159	0	132	0	0	291	5.60	239
0120	Agricultural Production	42,575	37,540	1,996	12,082	13	1,755	0	1	13,851	2,820	3	825	0	0	3,648	1.83	1,652
0130	Horticulture and Landscaping	9,540	11,790	931	592	81	232	225	0	1,130	200	33	57	220	0	510	0.55	(421)
0140	Hotel/Motel Management	15,435	18,435	910	0	631	0	0	0	631	0	41	0	0	0	41	0.05	(869)
0150	Leisure and Recreation	7,885	9,255	432	0	66	0	0	0	66	0	14	0	0	0	14	0.03	(418)
0160	Real Estate	7,140	8,120	463	0	0	234	0	0	234	0	0	195	0	0	195	0.42	(268)
0170	Industrial Supervision	31,265	32,610	919	0	1,851	0	773	0	2,624	0	391	0	426	0	817	0.89	(102)
0180	Accounting and Bookkeeping	61,960	71,185	3,428	339	5,289	646	1,517	15	7,806	264	495	325	1,114	1	2,199	0.64	(1,229)
0190	Banking and Credit	18,210	22,835	1,144	0	205	0	0	0	205	0	30	0	0	0	30	0.03	(1,114)
0200	Business Data Processing	10,720	11,895	374	1,852	9,875	2,626	148	30	14,531	735	870	882	148	1	2,636	7.05	2,262
0210	Computer Science	7,190	10,245	384	78	721	0	82	0	881	47	107	0	82	0	236	0.61	(148)
0220	Office Supervision	7,270	8,640	365	1,072	4,105	45	158	1	5,381	869	284	0	158	0	1,311	3.59	946
0230	Secretarial	47,970	61,375	3,388	1,009	7,114	847	763	1	9,734	736	625	212	701	0	2,274	0.67	(1,114)
0240	Word Processing	17,980	20,745	969	189	779	62	355	0	1,385	159	76	57	353	0	645	0.67	(324)
0250	General Office Clerical	128,645	144,260	6,295	1,947	0	1,685	438	0	4,070	1,249	0	679	438	0	2,366	0.38	(3,929)
0260	Miscellaneous Clerical	71,235	80,875	2,696	0	0	70	0	0	70	0	0	70	0	0	70	0.03	(2,626)
0270	Food Marketing	6,230	7,210	359	0	0	0	0	0	0	0	0	0	0	0	0	0.00	(359)
0280	Merchandise Sales & Management	224,950	267,990	13,926	5,202	961	37	1,478	0	7,678	1,875	73	19	1,349	0	3,314	0.24	(10,612)
0290	Insurance	5,225	6,870	333	0	0	0	0	0	0	0	0	0	0	0	0	0.00	(333)
0300	Travel/Tourism	1,350	1,690	79	0	0	0	283	0	283	0	0	0	224	0	224	2.84	145
0310	Radio/TV Broadcasting	1,215	1,605	46	142	240	0	0	0	382	104	44	0	0	0	148	3.22	102
0320	Communication Technologies	505	550	6	0	49	0	0	0	49	0	4	0	0	0	4	0.67	(2)
0330	Drycleaning and Laundering	6,295	7,370	404	115	0	75	0	3	193	23	0	2	0	0	25	0.06	(379)
0335	Funeral Services	435	500	17	0	0	0	0	0	0	0	0	0	0	0	0	0.00	(17)
0340	Personal Services	9,160	10,590	536	1,144	66	54	21	1	1,286	379	15	1	20	0	415	0.77	(121)
0350	Surveying	1,885	2,220	69	0	346	0	0	0	346	0	41	0	0	0	41	0.59	(28)

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					ENROLLMENT						COMPLETERS							
		1980	1990		Secondary	Post-secondary	Adult	Proprietary	Apprentice	Total	Secondary	Post-secondary	Adult	Proprietary	Apprentice	Total		
0360	Electrical/Electronic Technologies	13,680	14,790	412	0	8,442	166	743	4	9,355	0	1,144	11	658	0	1,813	4.40	1,401
0370	Biomedical Equipment Technology	130	180	6	0	56	0	15	0	71	0	6	0	14	0	20	3.33	14
0380	Electromechanical Instrumentation	5,055	4,890	117	0	0	26	0	23	49	0	0	5	0	2	7	0.06	(110)
0390	A/C, Heating, and Refrigeration	3,170	3,975	165	270	2,894	297	89	90	3,640	49	293	84	89	16	531	3.22	366
0400	Water and Wastewater Technology	2,955	3,250	147	0	264	0	8	0	272	0	16	0	8	0	24	0.16	(123)
0410	Industrial Technologies	2,275	2,600	104	0	791	56	134	0	981	0	147	44	134	0	325	3.13	221
0420	Optical Technology	45	45	1	0	101	0	0	0	101	0	38	0	0	0	38	38.00	37
0430	Plastic Technology	10,210	12,470	467	0	131	0	6	0	137	0	8	0	6	0	14	0.03	(453)
0440	Safety Technology	1,865	2,125	106	0	0	12	0	0	12	0	0	12	0	0	12	0.11	(94)
0450	Welding Technology	17,750	17,750	356	1,290	1,948	1,103	0	118	4,459	462	116	389	0	23	990	2.96	656
0460	Quality Control Technology	14,240	13,740	433	0	70	12	0	0	82	0	8	11	0	0	19	0.04	(414)
0470	Mechanical Technologies	2,250	2,215	63	0	2,346	159	0	2	2,507	0	457	9	0	0	466	7.40	403
0480	Coal Mining Technology	1,120	1,345	46	0	52	0	0	0	52	0	8	0	0	0	8	0.17	(38)
0490	Dental Assisting	2,940	4,035	231	37	156	10	70	0	273	25	90	7	70	0	192	0.83	(39)
0500	Dental Hygiene	1,550	2,135	129	0	312	0	0	0	312	0	94	0	0	0	94	0.73	(35)
0510	Dental Laboratory Technology	825	1,065	43	12	56	0	0	0	68	4	17	0	0	0	21	0.49	(22)
0520	Emergency Medical Technology	1,035	1,260	65	0	75	60	0	0	135	0	0	31	0	0	31	0.48	(34)
0530	Radiologic Technology	2,665	3,605	191	0	448	0	26	0	474	0	90	0	6	0	96	0.50	(95)
0540	Respiratory Therapy Technology	1,130	1,610	88	0	604	13	0	0	617	0	131	0	0	0	131	1.49	43
0550	Surgical Technology	1,215	1,675	91	0	146	10	0	0	156	0	43	0	0	0	43	0.47	(48)
0560	Medical Laboratory Technology	3,945	5,305	269	0	516	0	6	0	522	0	73	0	6	0	79	0.29	(190)
0570	Mental Health Services	4,170	5,815	343	0	603	0	0	0	603	0	44	0	0	0	44	0.13	(299)
0580	Medical Assisting	1,440	1,855	105	0	1,453	1	540	0	1,994	0	221	0	385	0	606	5.77	501
0590	Medical Records Technology	450	640	46	0	117	0	99	0	216	0	17	0	99	0	116	2.52	70

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					ENROLLMENT						COMPLETERS							
		1980	1990		Secondary	Post-secondary	Adult	Proprietary	Apprentice	Total	Secondary	Post-secondary	Adult	Proprietary	Apprentice	Total		
0600	Veterinarian Assisting	2,445	3,130	158	0	48	0	132	0	180	0	24	0	124	0	148	0.94	(10)
0610	Nursing Related Services	30,735	46,310	3,035	1,493	0	396	108	2	1,999	497	0	49	108	0	654	0.22	(2,381)
0620	Licensed Practical Nursing	10,865	14,975	962	0	1,931	268	0	1	2,200	0	622	35	0	0	657	0.68	(305)
0630	Optometric Technology	875	1,185	51	0	52	0	0	0	52	0	11	0	0	0	11	0.22	(40)
0640	Occupational Therapy	145	205	11	0	59	100	0	0	159	0	15	0	0	0	15	1.36	4
0650	Physical Therapy	275	385	21	0	47	0	0	0	47	0	12	0	0	0	12	0.57	(9)
0660	Recreation Therapy	355	540	32	0	76	0	0	0	76	0	13	0	0	0	13	0.41	(19)
0670	Health Care Administration	1,005	1,115	52	415	0	0	25	0	440	308	0	0	9	0	317	6.10	265
0680	Nursing	31,005	43,840	2,665	0	8,455	0	167	0	8,622	0	1,466	0	81	0	1,547	0.58	(1,118)
0690	Diagnostic Services	4,310	5,735	298	0	0	0	0	0	0	0	0	0	0	0	0	0.00	(298)
0700	Teaching Aides/Child Care	28,190	32,815	1,887	348	273	0	0	0	621	120	56	0	0	0	176	0.09	(1,711)
0710	Clothing, Apparel, and Textiles	6,655	6,185	194	92	0	0	0	0	92	34	0	0	0	0	34	0.18	(160)
0720	Tailoring and Alteration	1,905	2,235	152	41	0	0	10	0	51	20	0	0	5	0	25	0.16	(127)
0730	Home Furnishings Management	0	0	0	0	316	15	22	11	364	0	39	2	22	0	63	0.00	63
0740	Food Services	150,945	191,835	10,333	917	508	180	255	0	1,860	240	63	34	200	0	537	0.05	(9,796)
0750	Dietetic Assisting	145	230	13	0	0	0	0	0	0	0	0	0	0	0	0	0.00	(13)
0760	Custodial Services	75,235	85,820	5,244	25	0	0	0	0	25	14	0	0	0	0	14	0.00	(5,230)
0770	Legal Assisting	920	1,850	156	0	219	0	54	0	273	0	31	0	37	0	68	0.44	(88)
0780	Library Assisting	2,825	2,940	109	0	28	0	0	0	28	0	4	0	0	0	4	0.04	(105)
0790	Chemical Technologies	4,055	4,545	142	0	45	0	0	0	45	0	8	0	0	0	8	0.06	(134)
0800	Metallurgical Technology	65	70	2	0	0	0	0	0	0	0	0	0	0	0	0	0.00	(2)
0810	Criminal Justice	28,810	34,325	2,111	0	1,091	0	35	0	1,126	0	206	0	35	0	241	0.11	(1,870)
0820	Fire Control Technology	1,640	1,910	52	0	176	0	0	0	176	0	9	0	0	0	9	0.17	(43)
0830	Firefighting	5,985	6,985	186	0	0	0	0	0	0	0	0	0	0	0	0	0.00	(186)
0840	Transportation Management	4,735	5,260	245	0	0	0	0	0	0	0	0	0	0	0	0	0.00	(245)
0850	Brick, Stone, and Tile Setting	5,060	6,705	293	35	0	64	0	25	124	11	0	0	0	0	11	0.04	(282)
0860	Carpentry	19,810	23,175	1,115	250	382	49	0	78	759	70	89	0	0	0	159	0.14	(956)
0870	Electricians	23,165	25,165	703	233	0	1,416	0	286	1,935	81	0	186	0	31	298	0.42	(405)

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					ENROLLMENT						COMPLETERS							
		1980	1990		Secondary	Post-secondary	Adult	Proprietary	Apprentice	Total	Secondary	Post-secondary	Adult	Proprietary	Apprentice	Total		
0880	Building Maintenance	18,265	20,710	684	130	0	0	0	0	130	56	0	0	0	0	56	0.08	(628)
0890	Plumbing and Pipe Fitting	13,655	15,575	607	8	0	156	0	163	327	6	0	18	0	13	37	0.06	(570)
0900	Construction Trades, N.E.C.	25,815	28,765	1,249	2,955	674	465	0	231	4,325	1,008	71	155	0	33	1,267	1.01	18
0910	Electric & Electronic Equip. Repair	16,650	18,265	476	1,030	0	330	0	75	1,435	445	0	120	0	23	588	1.24	112
0920	Home Appliance Repair	2,700	3,455	132	92	0	21	0	0	113	37	0	6	0	0	43	0.28	(109)
0930	Industrial Machine Maint. & Repair	25,005	25,765	678	29	1,912	95	0	0	2,036	24	102	0	0	0	126	0.19	(552)
0940	Musical Instrument Repair	165	215	7	0	4	0	0	0	4	0	4	0	0	0	4	0.57	(3)
0950	Shoe Manufacturing and Repair	1,175	1,225	38	0	0	0	0	0	0	0	0	0	0	0	0	0.00	(38)
0960	Sporting Goods Equipment Repair	525	600	19	0	0	0	0	0	0	0	0	0	0	0	0	0.00	(19)
0970	Electrical/Nuclear Energy Productn.	2,715	2,615	77	0	0	0	0	0	0	0	0	0	0	0	0	0.00	(77)
0980	Aircraft Mechanics	865	995	25	0	97	0	0	0	97	0	40	0	0	0	40	1.60	15
0990	Automotive Mechanics	35,765	42,780	1,574	4,078	2,080	801	389	27	7,375	1,338	156	243	389	16	2,142	1.36	568
1000	Automotive Body Repair	4,865	6,135	239	1,298	692	380	1	3	2,374	428	71	155	1	2	657	2.75	418
1010	Diesel Mechanics	4,060	5,160	217	260	207	0	223	0	690	109	30	0	223	0	362	1.67	145
1020	Drafting	6,640	7,915	241	544	1,934	296	59	90	2,943	196	187	129	59	2	573	2.38	332
1030	Graphic and Printing Communications	9,450	10,050	302	826	140	213	0	10	1,189	317	31	83	0	10	441	1.46	139
1040	Bookbinding	3,225	3,090	57	17	0	0	0	0	17	8	0	0	0	0	8	0.14	(49)
1050	Commercial Art	1,805	1,890	70	99	688	0	0	0	787	23	56	0	0	0	79	1.13	9
1060	Commercial Photography	2,025	2,265	96	44	280	66	0	0	390	21	21	11	0	0	53	0.55	(43)
1070	Upholstery	1,815	1,930	87	76	0	178	0	0	254	4	0	101	0	0	105	1.21	18
1080	Meat Cutting	5,930	5,810	171	0	0	0	0	0	0	0	0	0	0	0	0	0.00	(171)
1090	Tool & Die/Machine Tool Operation	69,170	67,905	1,488	1,414	1,679	1,209	12	971	5,285	544	103	287	12	97	1,043	0.70	(445)
1100	Metal and Wire Fabrication	22,640	22,265	462	32	0	51	0	57	140	8	0	17	0	2	27	0.06	(435)
1110	Woodworking	9,920	11,045	407	225	12	227	0	0	464	27	3	92	0	0	122	0.30	(285)

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1120	Air Transportation	1,665	2,050	55	65	73	28	0	0	166	16	9	23	0	0	48	0.87	(7)
1130	Marine Transportation	340	450	0	0	0	0	32	0	32	0	0	0	32	0	32	0.00	32
1140	Material Handling	18,660	18,845	315	12	0	0	0	0	12	4	0	0	0	0	4	0.01	(311)
1150	Truck and Bus Driving	56,165	67,375	2,704	0	0	0	207	0	207	0	0	0	199	0	199	0.07	(2,505)
1160	Heavy Equipment Operations	15,305	16,555	470	0	0	0	0	0	0	0	0	0	0	0	0	0.00	(470)
1170	Miscellaneous Lumber Occupations	730	620	4	0	0	0	0	0	0	0	0	0	0	0	0	0.00	(4)
1180	Foundry Work	8,830	8,090	103	0	0	0	0	0	0	0	0	0	0	0	0	0.00	(103)
1190	Watch/Jewelry Workers	790	900	36	0	0	0	20	0	20	0	0	0	20	0	20	0.56	(16)
1200	Miscellaneous Occupations	9,325	7,955	90	0	0	0	0	0	0	0	0	0	0	0	0	0.00	(90)
1210	Miscellaneous Training Programs	0	0	0	4,216	75	0	0	0	4,291	2,544	20	0	0	0	2,564	0.00	2,564
	Total	1,683,800	1,953,060	88,337	49,294	78,428	17,943	9,728	2,320	157,713	18,839	9,817	5,935	8,264	272	43,127	0.49	(45,210)

Notes: 1. Cluster = a group of related occupations and training programs.
2. 1980 employment is an actual figure.
3. 1990 employment is a projected figure.
4. Average annual job openings = sum of average annual growth and average replacement.
5. Enrollment and completers are actual figures.
6. Enrollment and completers exclude consumer and homemaking education.
7. 1.00 for ratio of total completers to avg. annual job openings means total completers and avg. annual job openings are the same.
8. Over or (Under) supply = total completers minus avg. annual job openings.

Source: Indiana Microcomputer Occupational Information System, Initial Version, 4/87.

10/02/88
Indiana Microcomputer Occupational Information System
Geographic Region = STATEWIDE SUMMARY

OCCUPATIONAL DEMAND

CLUSTER 0610 NURSING RELATED SERVICES — CLUSTER DEMAND = 3035

OCCUPATIONAL TITLE	1980 EMPLOY	1990 EMPLOY	AVG ANNUAL JOB OPENINGS GROWTH	+	REPLAC	=	TOTAL
NURSES AIDES/ORDERLIES	30755	46310	1555		1480		3035
CLUSTER TOTALS:	30755	46310	1555		1480		3035

OCCUPATIONAL CHARACTERISTICS

CLUSTER 0610 NURSING RELATED SERVICES

OCCUPATIONAL TITLE	ANN SAL/ HR. WAGE	SVP	GED MTH	GED LNG	PHYS. REQIR	ENVIRON-MENT
NURSES AIDES/ORDERLIES	$10,000	4	2	2	M456	I

Number of Students ENROLLED in School Year 1984-85

CLUSTER 0610 NURSING RELATED SERVICES — CLUSTER ENROLLMENT = 1999

PROGRAM TITLE	CIP CODE	SECON-DRY	2-YR. P-SEC	COL & UNIV.	ADULT SEC	PRO-PRIETRY	APPR NTCE	OTHER
HOME HEALTH AIDE	17.0404				23			
NURSING ASSISTING	17.0602	1493			373	108	2	
CLUSTER TOTALS:	1493	0	0	396	108	2	0	

Number of Students COMPLETING TRAINING in School Year 1984-85

CLUSTER 0610 NURSING RELATED SERVICES — CLUSTER SUPPLY = 654

PROGRAM TITLE	CIP CODE	SECON-DRY	2-YR. P-SEC	COL & UNIV.	ADULT SEC	PRO-PRIETRY	APPR NTCE	OTHER
HOME HEALTH AIDE	17.0404				11			
NURSING ASSISTING	17.0602	497			38	108	0	
CLUSTER TOTALS:	497	0	0	49	108	0	0	

Job Placement of Trainees (% Available | % Placed Training Related)
Geographic Region = STATEWIDE SUMMARY; School Year = 1984-85

CLUSTER 0610 NURSING RELATED SERVICES

PROGRAM TITLE	CIP CODE	SECOND-ARY	2-YEAR P-SEC.	COL. & UNIV.	ADULT SEC-OND
HOME HEALTH AIDE	17.0404				
NURSING ASSISTING	17.0602	68%|45%			

^Data are based on the most recent survey of training program completers.
Blanks indicate no survey conducted or fewer than 10 respondents.

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Indiana Microcomputer Occupational Information System
Geographic Region = STATEWIDE SUMMARY

OCCUPATIONAL DEMAND

CLUSTER 0620 LICENSED PRACTICAL NURSING — CLUSTER DEMAND = 962

OCCUPATIONAL TITLE	1980 EMPLOY	1990 EMPLOY	AVG ANNUAL JOB OPENINGS GROWTH	+	REPLAC	=	TOTAL
LICENSED PRACTICAL NURSES	10865	14975	411		551		962
CLUSTER TOTALS:	10865	14975	411		551		962

OCCUPATIONAL CHARACTERISTICS

CLUSTER 0620 LICENSED PRACTICAL NURSING

OCCUPATIONAL TITLE	ANN SAL/ HR. WAGE	SVP	GED MTH	GED LNG	PHYS. REQIR	ENVIRON-MENT
LICENSED PRACTICAL NURSES	$13,600	6	3	4	M456	I7

Number of Students ENROLLED in School Year 1984-85

CLUSTER 0620 LICENSED PRACTICAL NURSING — CLUSTER ENROLLMENT = 2200

PROGRAM TITLE	CIP CODE	SECON-DRY	2-YR. P-SEC	COL & UNIV.	ADULT SEC	PRO-PRIETRY	APPR NTCE	OTHER
PRACTICAL NURSING	17.0605		1931		268		1	
CLUSTER TOTALS:	0	1931	0	268	0	1	0	

Number of Students COMPLETING TRAINING in School Year 1984-85

CLUSTER 0620 LICENSED PRACTICAL NURSING — CLUSTER SUPPLY = 657

PROGRAM TITLE	CIP CODE	SECON-DRY	2-YR. P-SEC	COL & UNIV.	ADULT SEC	PRO-PRIETRY	APPR NTCE	OTHER
PRACTICAL NURSING	17.0605		622		35		0	
CLUSTER TOTALS:	0	622	0	35	0	0	0	

Job Placement of Trainees (% Available | % Placed Training Related)
Geographic Region = STATEWIDE SUMMARY; School Year = 1984-85

CLUSTER 0620 LICENSED PRACTICAL NURSING

PROGRAM TITLE	CIP CODE	SECOND-ARY	2-YEAR P-SEC.	COL. & UNIV.	ADULT SEC-OND
PRACTICAL NURSING	17.0605		99%|95%		

^ Data are based on the most recent survey of training program completers.
Blanks indicate no survey conducted or fewer than 10 respondents.

10/02/88
Indiana Microcomputer Occupational Information System
Geographic Region = STATEWIDE SUMMARY

OCCUPATIONAL DEMAND

CLUSTER 0680 NURSING — CLUSTER DEMAND = 2665

OCCUPATIONAL TITLE	1980 EMPLOY	1990 EMPLOY	AVG ANNUAL JOB OPENINGS GROWTH	+	REPLAC	=	TOTAL
NURSES, PROFESSIONAL	31005	43840	1283		1382		2665
CLUSTER TOTALS:	31005	43840	1283		1382		2665

OCCUPATIONAL CHARACTERISTICS

CLUSTER 0680 NURSING

OCCUPATIONAL TITLE	ANN SAL/ HR. WAGE	SVP	GED MTH	GED LNG	PHYS. REQIR	ENVIRON-MENT
NURSES, PROFESSIONAL	$21,000	7	4	5	M456	I

Number of Students ENROLLED in School Year 1984-85

CLUSTER 0680 NURSING — CLUSTER ENROLLMENT = 8622

PROGRAM TITLE	CIP CODE	SECON-DRY	2-YR. P-SEC	COL & UNIV.	ADULT SEC	PRO-PRIETRY	APPR NTCE	OTHER
NURSING, GENERAL	18.1101		413	8042		167		
CLUSTER TOTALS:	0	413	8042	0	167	0	0	

Number of Students COMPLETING TRAINING in School Year 1984-85

CLUSTER 0680 NURSING — CLUSTER SUPPLY = 1547

PROGRAM TITLE	CIP CODE	SECON-DRY	2-YR. P-SEC	COL & UNIV.	ADULT SEC	PRO-PRIETRY	APPR NTCE	OTHER
NURSING, GENERAL	18.1101		112	1354		81		
CLUSTER TOTALS:	0	112	1354	0	81	0	0	

Job Placement of Trainees (% Available | % Placed Training Related)
Geographic Region = STATEWIDE SUMMARY; School Year = 1984-85

CLUSTER 0680 NURSING

PROGRAM TITLE	CIP CODE	SECOND-ARY	2-YEAR P-SEC.	COL. & UNIV.	ADULT SEC-OND
NURSING, GENERAL	18.1101		95%|86%	93%|93%	

^ Data are based on the most recent survey of training program completers.
Blanks indicate no survey conducted or fewer than 10 respondents.

APPENDIX

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